No. 60 Fall 1988 $5 ($6 Canadian)

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STAIRWAYS TO NOWHERE

BY ROBERT BRADY

HERE AT LAST IS THE ACTUAL answer to that timeless western koan: "When is a door not a door?" Here is also the story of the man who wasn't there and the man who found him. To begin without a beginning:

Once upon a time there was an artist named Akasegawa Genpei who, dressed in a white suit, strolled the streets of Tokyo, polishing to a gleam and then perfuming the manhole covers of that great metropolis. He is also legendary in struggling-artist circles for having found the absolutely cheapest six-mat room in Tokyo, which also gave him the distance he needed to perspectively view his paintings-in-progress: the mats were laid end-to-end. Amply sufficient credentials for the proceedings briefly chronicled here.

Once upon another time (hang in there, this all ties together) there was a Jap-

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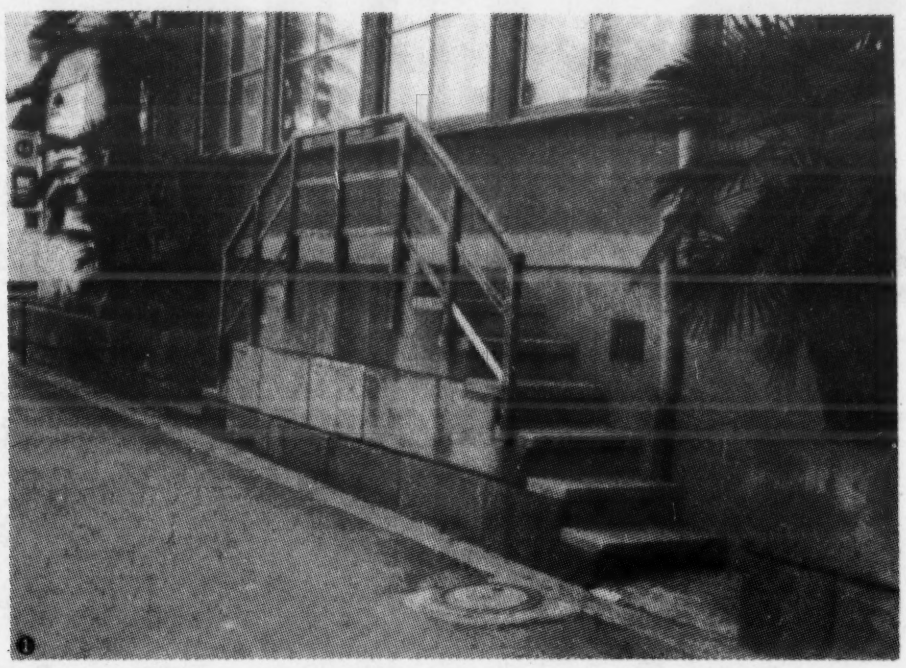


anese baseball team called the Yomiuri Giants. They thought they needed a man who seemed to be there, named Gary Thomason, who at the time was not there in any way whatsoever for the Los Angeles Dodgers. The Giants, for reasons they'd rather not go into anymore, paid a lot of money for Thomason who, wad in jaw, predicted that he would hit at least 20 HRs a season for his new team. His subsequent and now legendary ineptitude at the plate earned him the nickname "the electric fan."

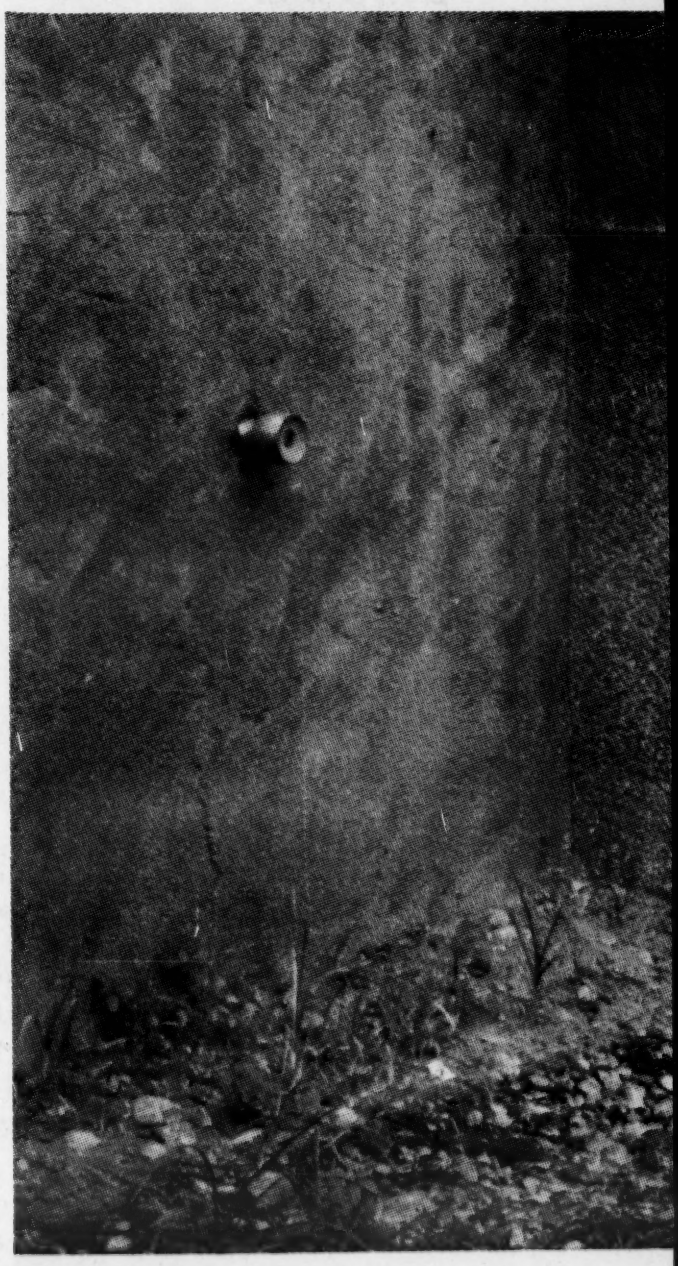
Back again to the perfumed sewers of Tokyo. Mr. A., in his scented perambulations and with his perceptions strangely focused by that six-mat room, began to notice architectural phenomena around the city that were . . . that were . . . well, not *nothing* exactly, though that is part of it, but more like the nothing-of-something, or . . .

Anyway, Mr. A. saw these things as a kind of ultra-art: things once functional in fact, still functional in essence, still in place, yet actually useless and not bureaucrats. A doorknob sticking through a solid cement wall, a doorway 30 feet up in a building, opening onto thin air. Stairways to blank walls, all kept in good repair. Casualties in the modern rush to function to the max with cost to the min. The aesthetic of disutility . . . This all trails off into the thinner vapors of rarefied aesthetics at this point, though, since some of the "works" are only so by virtue of their *not* being there. You follow? As time went by, Mr. A. published articles on his new-found art form, asking that readers submit their own discovered examples of these . . . these . . . *Tomasons!!* Yes!! And so the baseball man who wasn't there was linked forever by the white-suited man with scent and scrub-brush to an enormous smokestack in a vacant lot, among other things. These oddments that are/not there can be seen at once to have their equivalents in every sector of society, from Reagan's brain to history and the social sciences, so it's no wonder that Mr. A. gathered them into a thoroughly illustrated book (*Tomason*, Byakuyashobo, 1985) which, as a work of popular culture, has struck a resonant chord in the minds that travel the treadmill regions of Japanese (not to say international) studentry and salarymanry, whence came ecstasies, no doubt, of recognition: "Ah yes, the doorknob at the end of school . . .." mused one perhaps. "Ah, the stairway to the rest of my life," another may have observed. Metaphors for certain familiar turnings in the modern maze, for the poverty of planning in the super-rich society, touching records of a humanity struggling under a huge, concrete-coated throwaway marshmallow, monuments to bureaucratic, architectural, statistical pragmatism, just plain laziness and much, much more. Inklings of the deep in the shallow waters now lapping at the head of modern man.

Questions naturally follow: Is something breaking through in these recognitions? What is it? Has the world at last gone Dada? Where there is doubt, there is art. Japanese public TV has done a program on the Tomason; Mr. A. gives widely attended "Tomason Tours" and his book has grown steadily in popularity among those of us awhirl in the marketing maelstrom of today who value valuelessness for valuelessness' sake, one of the many spiritual advantages afforded us by commerce.

Suffice it to say, the concept has recently gone international, Tomasons having been found in Paris; presumably no nation is immune.

The distinctions posited in *Tomason* are crucial to all of us traversing the maze of civilized life, searching for the goal as the marshmallow closes in — let us take heart; there's gotta be a non-Tomason door around here somewhere. ■



Robert Brady is a poet living in Japan, currently fiction editor for Kyoto Journal, where this first appeared. He says the "greatest all-round education of my life was a year spent scavenging in the Berkeley landfill."

—Kevin Kelly

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COVERS ***Front:*** In the foreground, an aerial view of Nonsuch Island, a 15-acre Bermudian island in the North Atlantic, 600 miles east of North Carolina. Like the main Bermuda islands, this one was ecologically devastated during the 350 years that humans have known it. The only native tree to thrive in the modern landscape of a domesticated Bermuda was a type of cedar. In the 1940s a parasitic insect, accidentally introduced to the islands on an imported juniper shrub, wiped out the entire island-wide stand of cedars, leaving only a forest of weathered skeletons, still standing 30 years later (background picture). ***Back:*** A yellow-crowned night heron, a bird that once inhabited Bermuda, living off the abundant land crabs. It has been successfully re-introduced and once again breeds on Nonsuch Island. —Kevin Kelly

Photos: Nonsuch Island — courtesy of Bermuda Department of Tourism; cedar skeletons by Kevin Kelly; yellow-crowned night heron by Frank Long, courtesy of the National Audubon Society.

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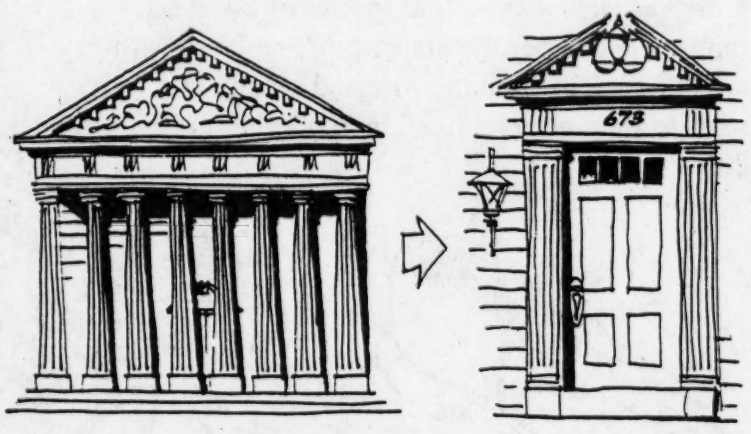

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The Evolutionary Sidestep

BY WILLIAM H. CALVIN

ILLUSTRATED BY MALCOLM WELLS

EVOLUTION is full of surprises. I don't mean the funny-shaped animals, like flounder or angler fish, that readily evoke an exclamation or laugh. I'm referring to the improbable ways that evolution has of doing things, the surprising paths taken by evolution that violate all the stereotyped notions about progress. Sometimes evolution isn't the slow grind, meandering along, continuously editing random variations into ever-better versions.

Slow-but-sure is the popular image of Darwinism, but evolution really isn't very efficient. It's full of dead ends, which require backing up biologically in order to "make progress." Then there's coevolution, such as arms races. And, most surprising of all, biological evolution sometimes takes a sideways leap to tread a novel path.

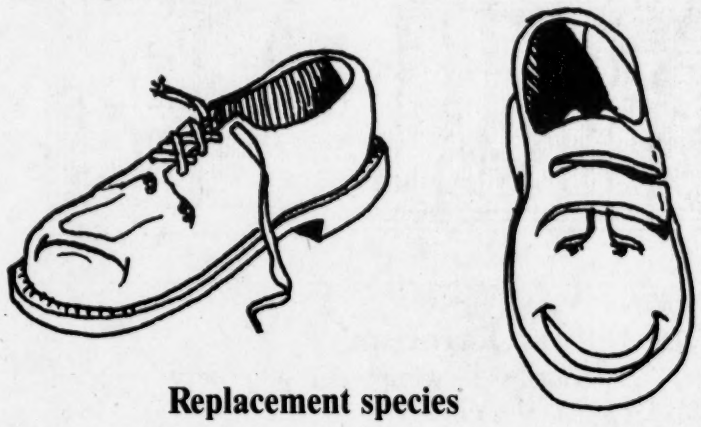
Cultural evolution provides a shortcut (albeit a somewhat hazardous one) to appreciating similar features of biological evolution such as backing-up and sidesteps.

For instance, in cultural evolution one can see:

• *Temporary forms:* novel words introduced into the vocabulary — and their typical fate, though some survive several decades.

• *New variations:* old products competing in the marketplace (breakfast cereals, soft drinks), many of them simple variations on a theme in search of a new niche.

• *Replacement species:* old species of fasteners (anyone remember the diaper pin?) replaced with tape and velcro. "Baling wire and sealing wax" seem to have been replaced by battleship-gray duct tape.



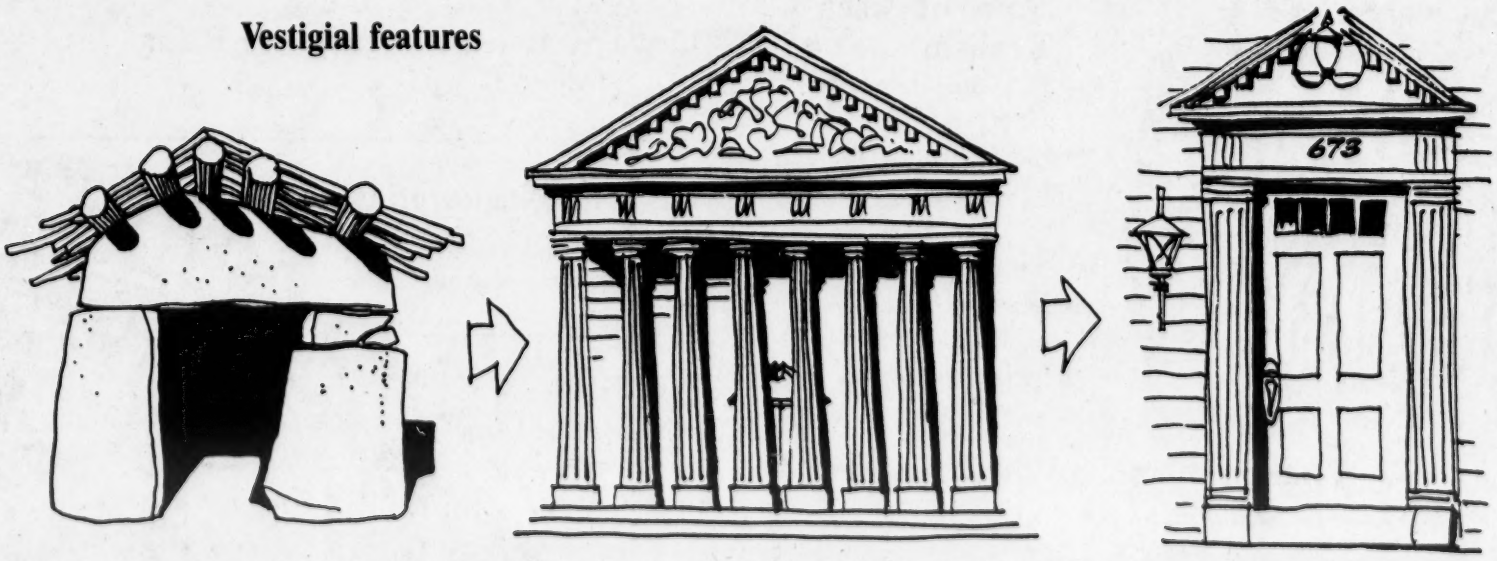
Replacement species

• *Vestigial features:* for example, those buttons on men's sleeves without matching buttonholes and those buttonholes on their lapels without matching buttons, carried over from an earlier age when they were functional, giving us some analogies to the appendix.

• *Backing up:* as when the technology of ever-more-sturdy adhesives was mellowed to create removable notepaper suitable for temporarily posting reminder messages on doors and telephones.

• *Combinations:* an innovation successful for one reason may, in combination with another, prove handy for other (sometimes diametrically opposed)

Vestigial features

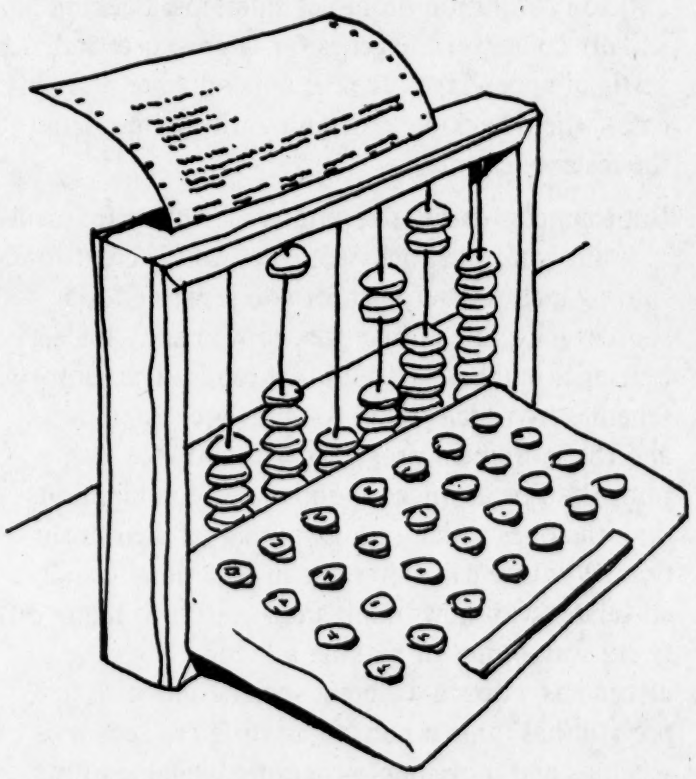


The author is a neurobiologist at the University of Washington and author of The River That Flows Uphill: A Journey from the Big Bang to the Big Brain. *This article is adapted from his forthcoming book from Bantam,* Conscious Machines: Seashore Speculations on Darwinian Designs.

—Kevin Kelly

applications. My ancestor John Calvin imposed on sixteenth-century Geneva "a regimen which included getting up very early, working very hard, and always being concerned with good morals and good reading" (the emphasis on Bible-reading instead of sacraments promoted education regardless of birth or wealth). Though more fiercely anti-scientific than the Church of Rome (the scientist Servetus was burned at the stake in Geneva, in contrast to Galileo's house arrest), the Calvinist combination of equal educational opportunities and hard work turned out to be conducive to science in the following century, the Puritans becoming staunch supporters of science.

• *Sidesteps:* The function of an innovation may drastically change after its initial adoption — computers invented for number-crunching becoming useful for noncalculating jobs (competing with typewriters and file cabinets, even running assembly lines and wristwatches), the old analgesics such as aspirin becoming useful for unexpected applications (such as preventing blood clots).

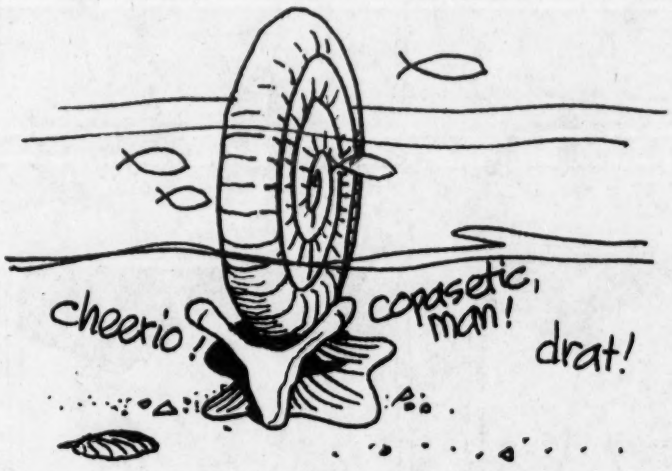


Sidesteps: Calculator begets computer.

But, handy though cultural change may be for illustrating the *themes* of biological evolution, cultural analogies rapidly lead one astray when thinking about the *mechanisms* of biological evolution. It is downright hazardous to think of biological evolution using mechanistic analogies from cultural change, largely because biology doesn't pass on skills acquired during one's life to one's offspring.

Accumulating Techniques

One possible theme of evolution is "upwards to perfection." This concept was fashionable a century ago, fed by wishful thinking (how to make traditional religious notions "scientific"). But evolution seems full of dead ends. Most branches of the evolutionary tree of species die back.

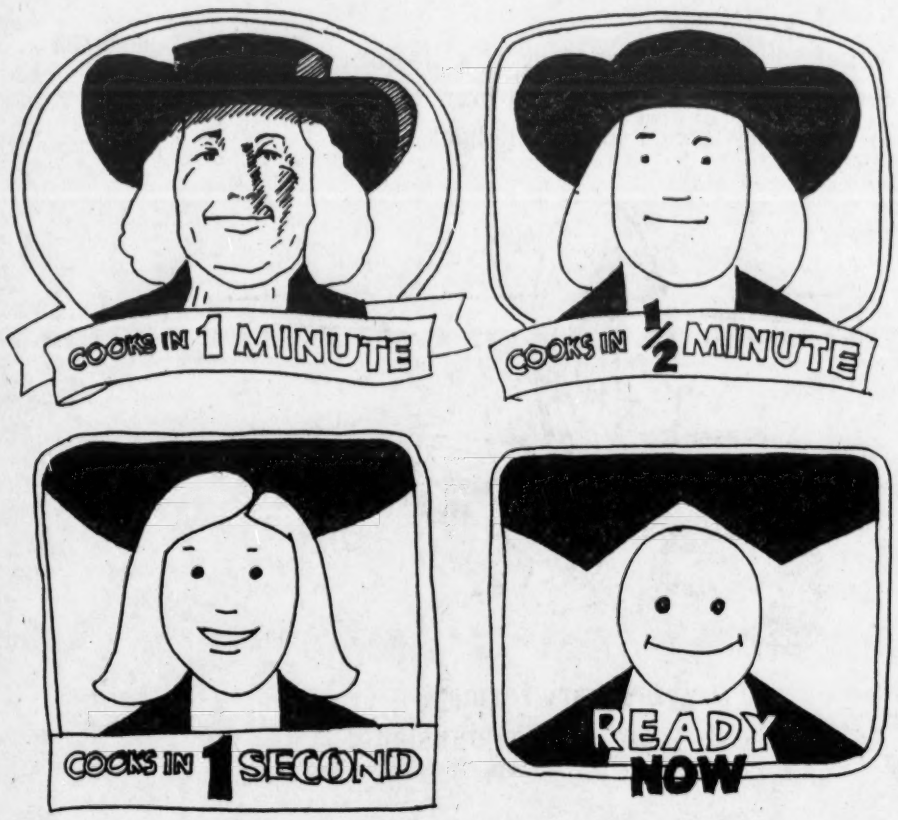


Temporary forms:
Fossils, ammonite, and slang.

Yet a closely related observation may, in fact, be true: organisms get fancier and fancier, capable of dealing with varied environments rather than just one. This seems to be a consequence of evolution being too slow to effectively "track" the frequent back-and-forth changes in climate — and so those variants which are capable of dealing with both old and new climates, with both old and new diets, with both old and new predators, are the ones which survive better. The classic example is intertidal animals, under daily waves of selection for their ability to tolerate both water and air habitats, and so eventually (about 450 million years ago) able to live on land full-time.

Another way to accumulate mechanisms is through an arms race. When we discover that the black widow spider's venom contains a whole spectrum of toxins, a baker's dozen, capable of killing us by many different routes, we are glimpsing a bit of the spider's evolutionary history, of adding on additional armaments as a prey develops new defenses. From this, one learns to go looking at the spider's usual and accustomed prey (humans are merely thoughtless intruders, as when a camper forgets to shake out the shoe before inserting his foot) to see how they successfully defended against the first dozen toxins and so prompted the spider to evolve yet another toxin. Such examination of ancient arms races may allow us to mimic their successful defenses, by developing a vaccine or medicine.

Backing up also tends to accumulate mechanisms: juvenilization has apparently played a major role in the evolution of humans from the apes, just as it did in the evolution of apes from Old World monkeys, just as it did in evolving the vertebrates from the invertebrates known as echinoderms. Backing up from overspecialization, then evolving some new specialization, backing up a bit from that (but keep-



Juvenilization.

ing the specialized genes on reserve), and striking out in a new direction once more — we've done a lot of that, and at major turning points in our evolutionary history. The French have a phase, "reculer pour mieux sauter" ("Step back to leap better"), that epitomizes a crucial evolutionary principle.

This does not mean, of course, that humans are merely infant monkeys, or that the whole human genome was present in the echinoderm, just waiting for repeated juvenilizations to come along (keeping us all from finally growing up to be sand dollars!). Evolution isn't a single track along which we advance or retreat — sometimes we jump sideways onto a new track, one which wasn't there before we jumped. Sideways leaps depend on those accumulated mechanisms promoted by tactics such as coevolution and juvenilization; they were greatly facilitated by the invention of brains back in the precambrian oceans almost a billion years ago — and the combination of brains, backing up, and sidesteps seems a particularly robust alliance for exploring new evolutionary byways.

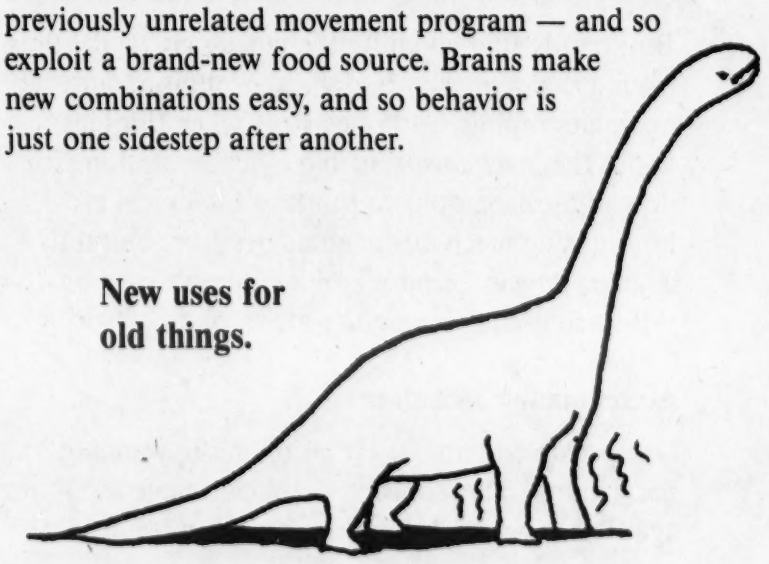
Sidesteps to Progress

A sidestep is a biological case of "new uses for old things," where the old thing shaped by natural selection turns out to have an additional use, once it reaches a certain stage of development. The standard example is feathers: they're very handy for flying, but it takes a lot of feathers before you can fly even a little. As Stephen Jay Gould once observed, a few feathers on the forelimbs of a running dinosaur will not induce liftoff. But feathers are also handy, even in small quantities, for thermal underwear and so we suppose that when a cooling climate had finally developed enough forelimb feathers on a running dinosaur, it discovered that it could glide downhill. Natural selection for thermal insulation got forelimb feathers going nicely, but once dinosaurs started gliding, then natural selection for flight abilities started to shape up a better airfoil than the crude beginnings (the dinosaurs aren't extinct; we just call them birds these days).

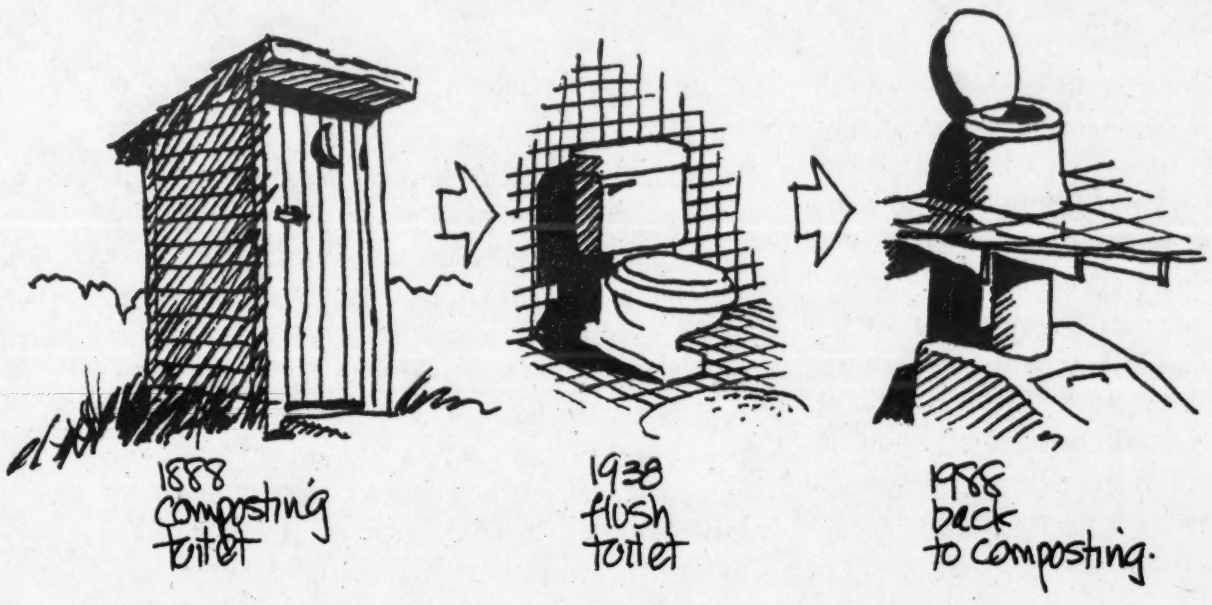
Note that the switch from the insulating track to the flying track wasn't due to natural selection: like discontinuities in mathematics where the rules break down, the sideways leap from insulating to flying tracks was extraordinary, a singularity among the comparatively predictable course of everyday improvements.

Sometimes, the digestive enzymes for two different foods can be used together to digest a third foodstuff: that makes the third something of a bonus, unearned by the standards of the slow course of the development of the first two enzymes. Two toxins are sometimes effective together but not separately, and so coevolution promotes sidesteps. Backing up usually conserves the genes for later re-use, and vestigial appendages like the appendix are probably cases where backing up hasn't entirely eliminated the reserve feature.

But examples of sidestepping are far more frequent in brain-controlled behavior: the two different food-finding tactics developed for two separate food sources may, in combination, prove handy for acquiring a number of additional foods. The sensory schemas by which friend-foe-prey are recognized, and the movement programs (run, pounce, swat, jump) can be arranged in more new combinations than the ones which originally shaped their evolution. What we call cleverness in an animal usually correlates with how omnivorous it is: how many different ways it has of making a living. When a carnivore has a dozen different species on which it preys, it has quite a number of different sensory schemas and movement programs available to it. When placed in a new situation, it may be able to use several sensory schemas in combination with a previously unrelated movement program — and so exploit a brand-new food source. Brains make new combinations easy, and so behavior is just one sidestep after another.



New uses for old things.



"Step back to leap better."

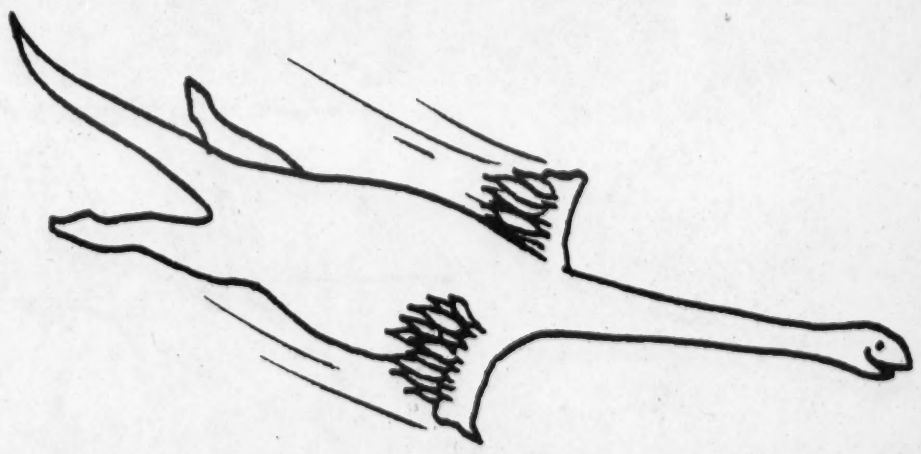
A major reason is that nerve cells have a "currency" that allows them to compare unlike things. It is very similar to money, so consider for a moment the greatest of all economic advances, when money replaced barter. While barter allowed so many bushels of wheat to be equated with a pig, money allowed three-way transactions, so that one didn't have to then trade the pig for a finely-crafted tool, or so many days of hired labor. And then a common currency such as gold, accepted in many ports, allowed one country's timber to be bought without explicitly trading it for another country's wheat. Comparing dissimilar things is relatively easy for brains, probably because nerve cells invented a currency, which we now measure in units called "volts," close to a billion years ago. That way we can compare apples and oranges, guns and butter — we reduce them all to volts first. We can even substitute a symbol (road-sign schematic "logos" are examples) for the more picture-like representations of the real thing stored in the brain. Symbols may even "equal" a whole scenario, as when the "icy road" sign or the "beware of falling rocks" sign brings a whole slow-motion sequence to mind.

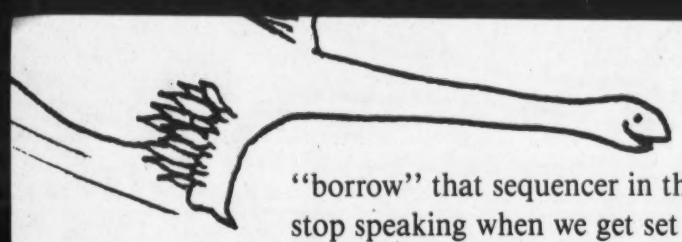
Brains can also use a given cell for different tasks, such as sensing a line orientation but also a color; when a monkey concentrates hard on telling two colors apart, he assigns more multifunctional neurons to the color task. This multifunctionality means that evolutionary improvements in one ability, such as color vision for spotting fruit high up in a tree against the background of waving leaves and a shifting patchwork of light and shadow, may incidentally improve proficiency in symbolic representation.

Music provides a modern example of an evolutionary sidestep. Four-part harmony is unlikely to have been biologically shaped up for its usefulness. It seems more likely that music is a spare-time use of some neural machinery which allows a sequence of sounds to be held and internally compared. We need exactly such neural arrangements for speaking and listening, since our human language makes extensive use of word-order rules (grammar and syntax) which cause "John hit Sue" to be interpreted differently than "Sue hit John."

And, however useful our language is, syntax too might have originated via a sidestep from some other sequence-is-all-important task's neural machinery. For example, rapid movements. Most movements require only a general goal and feedback corrections, but rapid movements require advance planning, as feedback takes time (the reaction time for most tasks is more than 0.1 second) and arrives too late to do any good when hammering, clubbing, kicking, or throwing. Such ballistic movements need "command buffers" in which the muscle commands can be assembled as one "gets set" to throw, from which the messages are then sent to the muscles in rapid-fire order, causing the rock or spear to be released from the hand's grip at just the right time.

Did the precise hammering of the chimpanzee, as it cracks open tough nuts, make possible the throwing skills of prehumans? Did more accurate throwing, and its rewards in terms of hunting success, shape up an even better neural "sequencer?" Did language





"borrow" that sequencer in the off-hours (we still stop speaking when we get set to throw accurately)? Does music borrow it now when it isn't needed for either throwing or speaking? Do we use it to spin a scenario, as when we attempt to explain the past or forecast the future? Does it account for our self-consciousness as we see ourselves poised at the intersection of two plausible scenarios, choosing between different futures? Such are the possibilities created by the brain's multifunctional cells and circuits: they almost seem to specialize in sidesteps, the sequence-related sidesteps being the most recent and the most central to our humanity.

"Locking In" the Gains, Preventing Backsliding

How is an evolutionary advance stabilized (not all backslide, at any rate)? And in particular, how are sidesteps stabilized?

Sidesteps often confer some selective advantage (not always, e.g., music) and when they do, some streamlining occurs — just as when those ungainly protobirds first started gliding, and then ones with the more streamlined airfoils got to the food first. This is, of course, why sidesteps are so hard to see "in action": they are obscured by the streamlining that follows their crude beginnings. Language surely has some selective advantage now, even if it got its start via a sidestep from secondary uses of a ballistic movement sequencer. So sidesteps that are important are likely to be shaped up in the usual ways, and so strengthened.

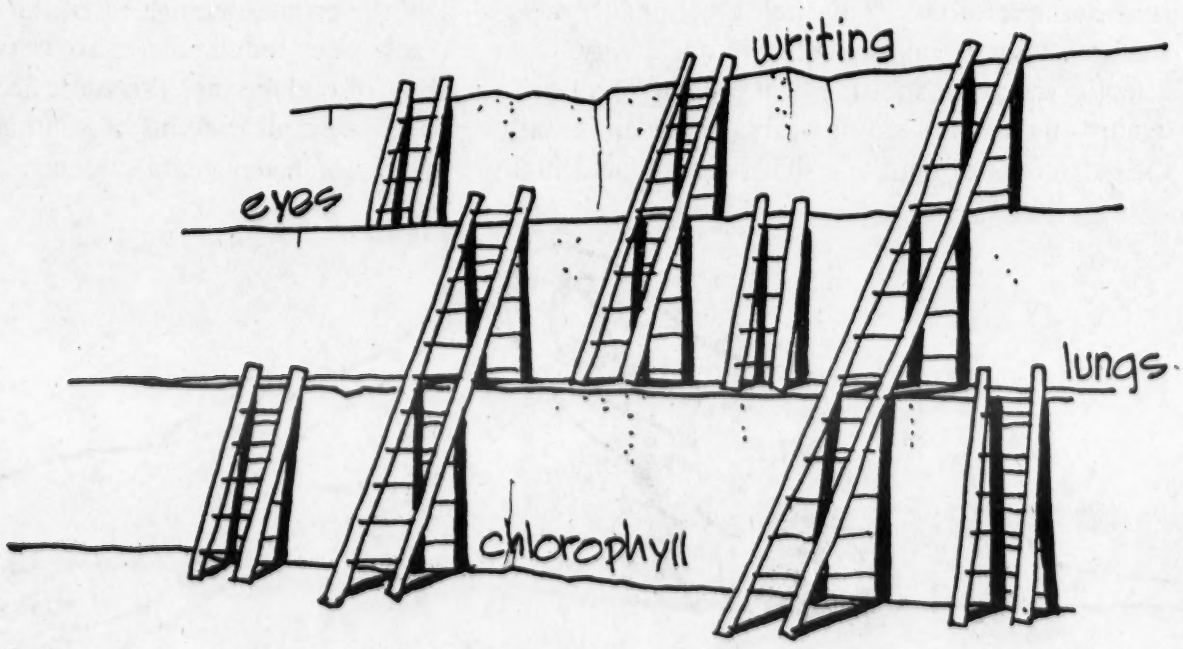
Strength isn't, per se, stability. Biology has this roundabout way of doing things that promotes stability in some cases. Unlike culture which remodels its structures and transmits acquired characteristics directly to the next generation, biology instead builds upon some mixture of the original blueprints instead — while scrapping the old models (such as you and me; "planned obsolescence" was, alas, invented by biology before Detroit adopted it). Information stored in the genes is more secure against catastrophe, though much less can be stored than via culture's methods.

Information "stored" in everyday practices is terribly dependent on having a teacher, and so some techniques are totally lost when an epidemic sweeps through a small group. Documents, and ways to learn from them, do tend to carry along information over the vicissitudes that cause backsliding in preliterate societies — but just remember what happened to the library at Alexandria, and how the accomplishments of the ancient Greeks were almost lost completely by book-burning. The cultural folly of a single generation can wipe out culture (and, these days, biology too: human-caused extinctions of animal and plant species are accelerating at an alarming rate, causing us to lose the evidence of all those ancient arms races which could be so beneficial to our health and food production).

Both cultural and biological evolution "make progress" largely because they happen upon inherent stabilities that reduce backsliding: Jacob Bronowski liked to call this *stratified stability* to emphasize that there were a series of them, each building upon the foundation provided by a previous one. Language was an early human invention of such major proportions; writing's invention 5,000 years ago built upon this foundation by associating a written symbol with a speech sound (as opposed to an object, as in hieroglyphics). Writing prevented some of the cultural backsliding associated with word-of-mouth errors and "out of sight, out of mind" forgetfulness. In biology, stratified stabilities occurred with replicating molecules, cell envelopes, sexual recombination, and the invention of brains, to name but a few. The formation of a new species by a one-month shift in mating season is a prime example of how to prevent backsliding by subsequent dilution.

Understanding how evolution proceeds is not only important for understanding ourselves and from whence we arose, but in assuring that the things which we value in our culture are protected against

Stratified Stability.



future backsliding. It looks as if morality has little biological underpinning, and even high cultures (consider how accomplished pre-Hitler Germany was in science, philosophy, theology, history, literature, and the arts) seem able to quickly lose some essential ingredients. Any underlying principle concerning how innovations become sturdy foundations, capable of supporting new superstructures, is obviously a matter of much importance if other societies are to avoid such backsliding. ■

A Neurobiologist's Reading List *BY WILLIAM CALVIN*

Nancy C. Andreasen, *The Broken Brain: The Biological Revolution in Psychiatry* (Harper and Row, 1984). English professor turned neurologist and schizophrenia expert, she writes well.

Michael A. Arbib, *In Search of the Person* (University of Massachusetts Press, 1985). Cognitive science and AI, quite readable.

Valentino Braitenburg, *Vehicles: Experiments in Synthetic Psychology* (MIT Press, 1984). Simple automata theory, but with chapter titles such as "Fear and Aggression," "Love," Getting Ideas," Egotism and Optimism."

A.G. Cairns-Smith, *Seven Clues to the Origin of Life* (Cambridge University Press, 1985). A "scientific detective story" using a Sherlock Holmes framework to discuss the origins of our carbon-based organic chemistry.

Jean-Pierre Changeux, *Neuronal Man* (Oxford University Press, 1985). Brain sciences for general readers in the French intellectual tradition, a bestseller in its 1982 Paris edition.

Richard Dawkins, *The Blind Watchmaker* (Norton, 1986). The sequel to *The Selfish Gene:* there is a Macintosh program disk available to accompany this for playing god yourself. (*WER* #58.)

Daniel C. Dennett, *Elbow Room: The Varieties of Free Will Worth Wanting* (MIT Press, 1984). A subversive attack on philosophical method that threatens to take away one of the philosophers' favorite games.

Robert Desowitz, *The Thorn in the Starfish: The Immune System and How It Works* (Norton, 1987). Very readable essays on the immune systems, AIDS included.

Eric Drexler, *Engines of Creation* (Doubleday, 1986). Nanotechnology. (*WER* #53.)

Paul R. Ehrlich, *The Machinery of Nature* (Simon & Schuster, 1986). Ecology.

Jane Goodall, *The Chimpanzees of Gombe: Patterns of Behavior* (Harvard University Press, 1986). The full story on chimpanzees in the wild.

Garrett Hardin, *Filters Against Folly* (Penguin, 1985). Great on economics and ecology, ways of thinking about time, value. (*WER* #51.)

John Harte, *Consider a Spherical Cow* (William Kaufman, 1985). How to set up math problems in ecology, atmospheric sciences, etc.

Nicholas Humphrey, *Consciousness Regained: Chapters in the Development of Mind* (Oxford Paperbacks, 1983).

J. Imbrie and K. P. Imbrie, *Ice Ages: Solving the Mystery* (Harvard University Press, 1986). What causes the ice ages, and the history of their discovery in the 19th century.

Marc Jeannerod, *The Brain Machine: The Development of Neurophysiological Thought* (Harvard University Press, 1985).

Björn Kurten, *How to Deep-Freeze a Mammoth* (Columbia University Press, 1986). Essays on paleontology, as readable as his novel *Singletusk.*

Roger Lewin, *Bones of Contention* (Simon & Schuster, 1987). About the search for fossil hominids in Africa.

Mary Midgley, *Evolution as a Religion: Strange Hopes and Stranger Fears* (Methuen, 1985). Philosophy of evolutionary theory.

Mary Midgley, *Animals and Why They Matter* (University of Georgia Press, 1983).

Jonathan Miller, *States of Mind* (Pantheon, 1983). Set of interviews.

Marvin Minsky, *Society of Mind* Simon & Schuster, 1987). AI view of how to construct a mind; nicely tutorial and illustrated, though written as if the neurosciences didn't exist. (*WER* #51.)

Richard Rhodes, *The Making of the Atomic Bomb* (Simon & Schuster, 1987). Excellent intellectual history of 20th-century physics, not just another Los Alamos book. (*WER* #59.)

Michael Ruse, *Taking Darwin Seriously* (Basil Blackwell: Oxford, 1986). On the philosophy of evolutionary biology.

Oliver Sacks, *The Man Who Mistook His Wife for a Hat* (Summit, 1985). Tales of neurological patients. (*WER* #51.)

Victor B. Scheffer, *Spires of Form: Glimpses of Evolution* (University of Washington Press, 1983). Animal stories.

Robert Shapiro, *Origins: A Skeptic's Guide to the Creation of Life on Earth* (Summit, 1986). Beginnings of organic chemistry.

Gerald Weissman, *The Woods Hole Cantata* (Dodd, Mead & Company, 1985). Essays on biology.

J. Z. Young, *Philosophy and the Brain* (Oxford University Press, 1987). Lectures by the neurobiologist, who almost titled the book "Philosophers, Use Your Brain!" See also his *Programs of the Brain.*

Biography and Such

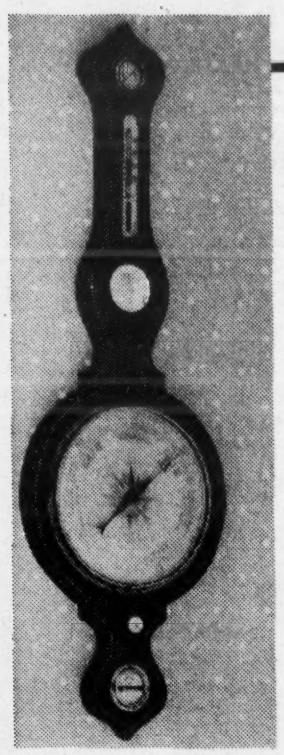
Gregory Bateson and Mary Catherine Bateson, *Angels Fear* (Macmillan, 1987).

Loren Eiseley, *The Lost Notebooks of Loren Eiseley* (Little, Brown, 1987).

Mark Kac, *Enigmas of Chance* (Harper & Row, 1985). Autobiography of the mathematician.

Evelyn Fox Keller, *A Feeling for the Organism* (W. H. Freeman & Company, 1983).

Peter Medawar, *Memoir of a Thinking Radish: An Autobiography* (Oxford University Press, 1986).



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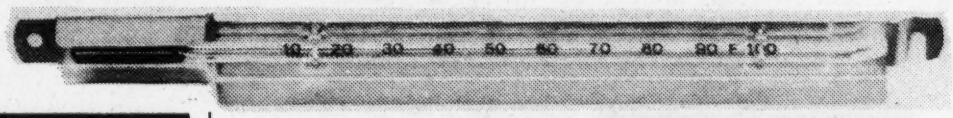


Subsidizing The Sun

Is government subsidy of solar enterprise a good idea? Zomeworks founder Steve Baer, purveyor of excellent solar hardware and designs, thinks not. Neither does William Shurcliff, author of many books we've liked, books that explain and de-hype energy matters. This skinny pamphlet is a collection of the authors' papers on solar subsidies. Political correctness is not a concern of either man, so you get it right through the heart. Or, hopefully, the head; the basic principles apply rather well to subsidy in any form. —*J. Baldwin*

•

The sun comes up every morning and the solar majority gets up to make use of it. The solar minority, represented by the Solar Lobby, are determined to get a subsidy for their uses of the sun. They intend to have the rest of us, the solar majority, pay them to do their uneconomic impersonations of fossil fuels.

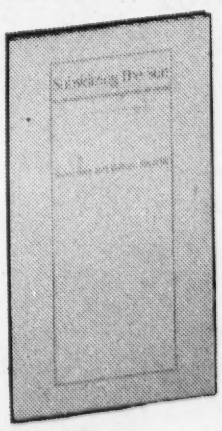
•

Notice that the only uses of the sun that have been eligible for subsidies are those that impersonate fossil fuels. The sun has to flow through wires as electricity or through ducts or pipes as a hot fluid to be considered solar energy. It can't just naturally light a room or grow a plant. This is how the political activists have defined it. It resembles the women's movement, which has been aimed at rewarding and subsidizing women who wish to impersonate men (such as being firemen), not the average woman.

The solar industry imagines itself the champion of a cause favored by mother nature. It presents itself as the one group struggling against a powerful machine burning subsidized oil. Poor mother nature — first she watched man slight her own solar powered ways when he began subsidizing his new oil-powered inventions, and now, when he promised to right this wrong and come to the aid of the sun, what has it been? Subsidies for the sun, but only where it impersonates men's machines.

—Steve Baer

Subsidizing The Sun
Steve Baer and
William Shurcliff
1988; 23 pp.
$4
postpaid from:
Steve Baer
P. O. Box 1327
Corrales, NM 87048



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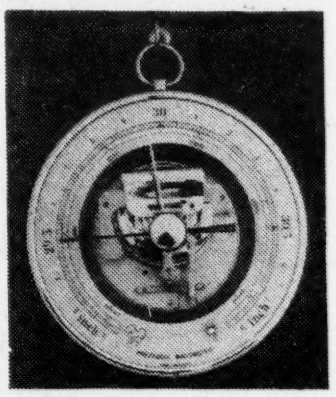

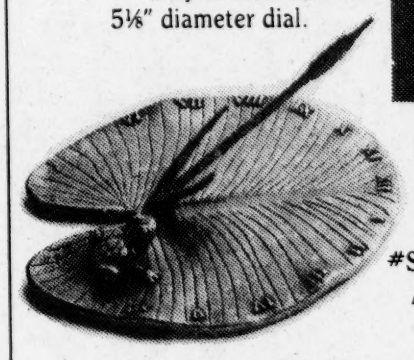

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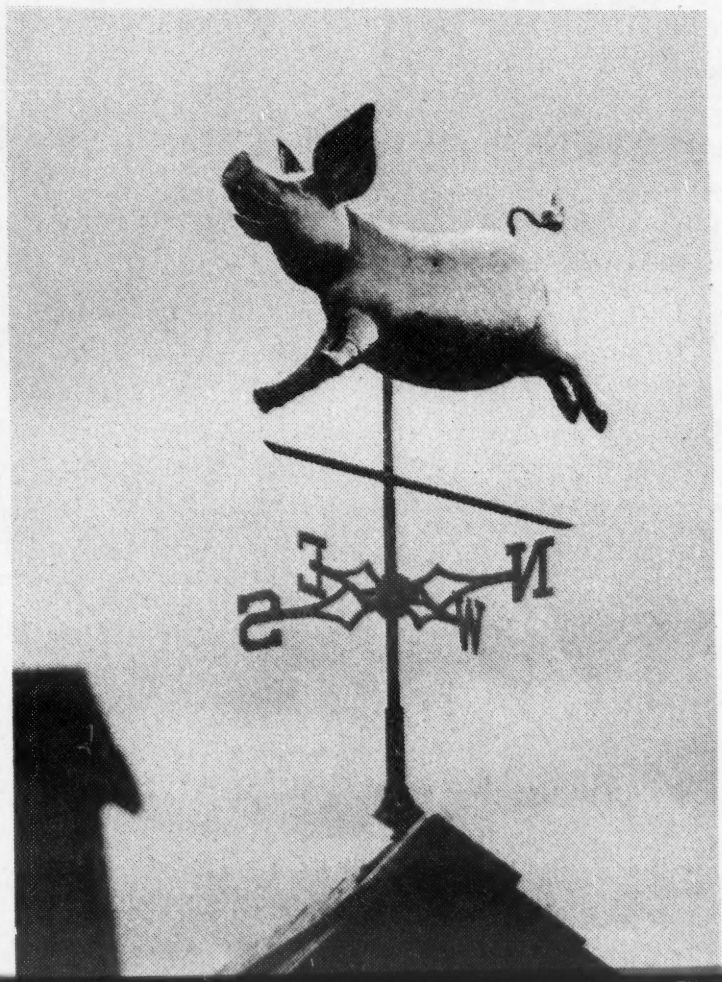

Infinite in All Directions

Freeman Dyson has the finest blend of good sense and blazing originality you'll find in a scientist or political commentator writing today. In this new book derived from his Gifford Lectures at Aberdeen, Scotland, Dyson proposes new biological research in the tradition of Schrodinger's ***What Is Life?****, promotes inventors to equal status with scientists, analyzes what went wrong with U.S. nuclear power and prepares the way for its sensible revival, and explains lucidly in a chapter called "Engineer's Dreams" why enormous one-shot projects almost always go awry. "Quick," he concludes, "is beautiful." Lots of cheap incremental steps that learn from each other is the highest yield approach.*

Living up to its title, this is a work of insightful optimism, of practical handles on futures worth getting excited about.
—Stewart Brand

Infinite in All Directions
Freeman Dyson
1988; 321 pp.
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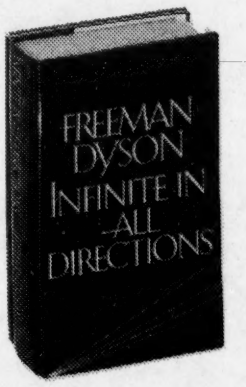

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At our Institute in Princeton we sometimes organize meetings which are announced as Shotgun Seminars. A Shotgun Seminar is a talk given by an Institute member to a volunteer audience. The subject of the talk is announced a week in advance, but the name of the speaker is not. Before the talk begins, the names of all people in the room are written on scraps of paper, the scraps of paper are put into a box, the box is ceremoniously shaken and one name is picked out at random. The name picked out is the name of the speaker. The unbreakable rule of the seminar is that nobody whose name is not in the box may listen to the talk. This rule ensures that everybody does the necessary homework. The audience is at least as well prepared as the speaker. The audience is ready to argue and contradict whenever the speaker flounders. Anybody who has not given serious thought to the subject of the seminar had better not come.

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Judging by the experience of the last fifty years, it seems that major changes come roughly once in a decade. In this situation it makes an enormous difference whether we are able to react to change in three years or in twelve. An industry which is able to react in three years will find the game stimulating and enjoyable, and the people who do the work will experience the pleasant sensation of being able to cope. An industry which takes twelve years to react will be perpetually too late, and the people running the industry will experience sensations of paralysis and demoralization. It seems that the critical time for reaction is about five years. If you can react within five years, with a bit of luck you are in good shape. If you take longer than five years, with a bit of luck you are in bad trouble.

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Perhaps it is possible to discern a persistent pattern in the rise and fall of engineering technologies. The pattern resembles in some ways the rise and fall of species in the evolution of plants and animals. A technology during its phase of rapid growth and spectacular success is usually small, quick and agile. As it grows mature it becomes settled and conservative, prevented by the inertia of size from reacting quickly to sudden shocks. When a technology has grown so big and sluggish that it can no longer bend with the winds of change, it is ripe for extinction. Extinction may be long delayed or avoided in sheltered corners, but an overripe technology cannot regain its lost youth. New small and quick alternatives will be waiting to occupy the ecological niche left vacant by the decline of the old.

The Map Catalog

A guide to over 50 kinds of maps and atlases from commercial sources and governments, both foreign and domestic, of land, sky, and water. Appendixed with addresses of agencies, map libraries, and selected map stores; glossaried and copiously indexed. —Don Ryan

The Map Catalog
Joel Makower, Editor
1986; 252 pp.
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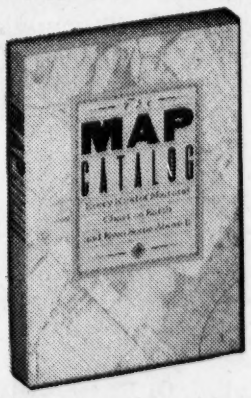

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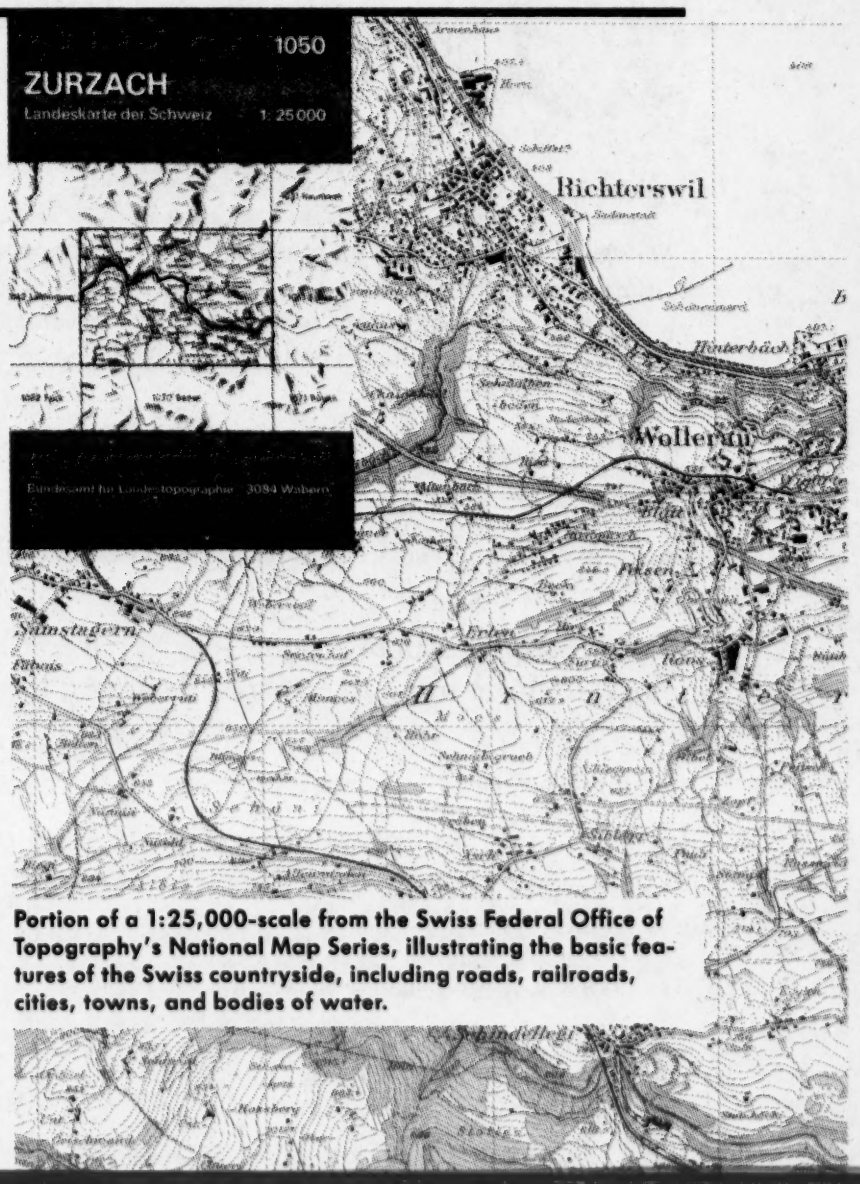
U.S. Geological Survey. USGS has several world maps available, most popular being the "International Map of the World" ($3.60), a basic multicolored reference map showing borders, capital cities, and other key features to delineate the nations of the world. Another popular USGS world map is the "Relief Edition of the International Map of the World," which has been created in three scales: the 1:20,000,000-scale map ($3.90), a single sheet measuring 42" x 56"; the 1:22,000,000-scale map ($9.90), consisting of three sheets, each measuring 34" x 57"; and the 1:14,000,000-scale map ($33.30), consisting of six sheets, each measuring 42" x 56".



Portion of a 1:25,000-scale from the Swiss Federal Office of Topography's National Map Series, illustrating the basic features of the Swiss countryside, including roads, railroads, cities, towns, and bodies of water.

ROBUST TERRORISM

BY JOEL SHURKIN

The Stranglers

'Thugs *about to* strangle *a Traveller! These* infamous Assassins *in order that the* Neck *of their unsuspecting victims may be the more exposed for their Satanic purpose, pretending to see something extraordinary, direct his attention to the stars or skies! and when he lifts up his head* strangle *him.'*
—Captain James Paton, Assistant to the British Resident at Lucknow, 1839

INTERNATIONAL TERRORISTS ARE NEITHER new nor as violent or outrageous as their predecessors, a historian told a conference on terrorism in February.

"By comparison, modern terrorists are quite anemic," said David Rapoport, professor of history at UCLA.

Additionally, instead of getting stronger and bolder because of mass communications and technology, they are more likely to be destroyed by them.

The conference, called "Terrorism: Ideologies and Paradigms in a Postmodern World," was sponsored by Stanford University's Center for European Studies, with support from other departments.

Rapoport said that only social scientists seem to think terrorism is new and that modern technology is somehow linked to abetting terrorist behavior. Terrorism was worse before television and jet aircraft.

This article first appeared in the* Stanford Observer, *vol. xxii no. 4.

"From 1880 to 1940, one major European minister or head of state was assassinated every 18 months. The period was known as the Golden Age of assassination."

"In 1907, the British journal *The Spectator* prophesied that if this end-of-the-century madness did not stop, somebody would kill an Austrian prince and trigger the greatest war in history." Seven years later, that is exactly what happened.

The international aspect of terrorism is not new either. The Russian social revolutionists of 1905 were headquartered in Switzerland, staged their raids in Finland, received Japanese funds laundered through America, and were armed by Armenian revolutionaries.

"My own study of rebel terror, which focuses on eight instances in the past century, indicates that in every case examined there was an important international component."

Before the end of the 19th century, most terrorists were religious in nature and were far more effective and violent than the current crop.

The three best-known religious terrorist groups — the Jewish Zealots of Roman Judea, the Moslem Assassins of the Ottoman Empire, and the Indian Thugs — added their names to the English language.

"They were much better at their job than our terrorists are at theirs. They killed more, they were more durable, and in those cases in which this was their aim, they proved more of a threat to the regimes that they attacked. They also had international range."

The Zealots were the only terrorist group in history to successfully trigger a popular uprising. The result of their activities, however, included the mass suicide at Masada, the loss of half the Jewish population, the destruction of the Second Temple in Jerusalem, and the 2,000-year Diaspora. The Zealots were active for 70 years.

The Assassins infiltrated every Islamic nation on two continents and lasted for two centuries.

The Thugs, worshippers of the Hindu goddess Kali, were active anywhere from three to possibly 25 centuries. During that time they may have killed 30,000 people a year, so their victims could have been in the millions. "They accomplished all those things with a technology that was about as primitive as it could be. They walked or they rode horses. They communicated directly in face-to-face contacts.

"And their weapons? They were nooses, daggers, and swords."

Modern terrorists have never come close to matching that record. "The number of Americans killed by international terrorists in the last 10 years does not exceed those killed by animal bites. And, in the last three years, the animals are outstripping the terrorists."

History has shown terrorists to be cyclical in nature, "much more like a disease. They come in certain periods and then they go." The cycles seem to be related to political watersheds.

Rapoport feels that the French Revolution probably helped move terrorism from its religious base to the secular, with the Russian revolutionaries beginning the modern period.

The oldest terrorist group now active in the world, according to Rapoport, is the Irish Republican Army, which is about 65 years old. The Palestine Liberation Organization is 20 to 30 years old.

The effects of the mass media on terrorism have been widely studied. British Prime Minister Margaret Thatcher once called publicity "the oxygen of the terrorist movements."

But history shows that publicity is just as likely to destroy a terrorist movement as encourage it. The Thugs were destroyed by a single newspaper article that galvanized the colonial government to action. Before then they had operated for centuries as a secret organization.

The most effective terrorist group now active is the Shining Path movement in Peru, which has killed perhaps 10,000 people in six years and has passionately avoided publicity. The Mafia has existed as long as it has by eschewing publicity.

"Sometimes an organization becomes so successful with publicity that it attracts the wrong people, people who are not very good terrorists. And sometimes those attracted, who had potential to be good terrorists, become corrupted by the passion for publicity." ■

The Stranglers

Thugs with tattooed eyelids (from Paton's papers).

GIFTS FROM THE THIEF

BY MICHAEL ORTIZ HILL

I WANT TO TELL THE ODD STORY OF MY recent burglary that ushered in for me the spirit of giving. The burglar, without intending it, left me one gift folded inside another so that in the midst of my outrage, I've also been visited by a kind of reluctant gratitude.

A few weeks ago, I met a man I will call Jimmy. Jimmy was about twenty and black with a tangled "fro" under a black leather cap. Dan, my neighbor, also a black man, introduced us. My eyes met Jimmy's with a curt hello. In myself, I felt a flash of distrust along with shame that I distrust black men so easily. In Jimmy, I saw the relentless furtiveness and bottled-up anger one sometimes sees in the eyes of a cocaine addict.

Later that night, while I worked graveyard shift, the little shack I live in with my daughter, Nicole, was broken into. The thief covered the window facing the street with my nurse's whites, overturned a small shell with my father's ashes and broke the forelegs of a ceramic unicorn my mother made when I was a child. Then he took off with my VCR and phone answering machine.

When I returned home to find my altar in disarray and my things ripped off, I felt nauseous with powerlessness. As it sunk in that the small world in which I had imagined my nine-year-old daughter to be safe had been violated, I wanted to kill. Then, when it became clear from Dan — who was also burglarized — that Jimmy had done this, part of me entered into the shadow realms of racism where black people are, by nature, untrustworthy.

I have my own ancient dilemmas regarding racism. On the one hand, I am half Mexican and was raised amongst Mexicans by a single mother who was militantly active in the Chicano movement. On the other hand, I was a white child who lived in racially tense neighborhoods and had an innate talent for drawing violence to myself. Because of these contradictions in my background, I denied the existence of my own racism. So the first gift Jimmy left me was the opportunity to look into my prejudices. I had no choice.

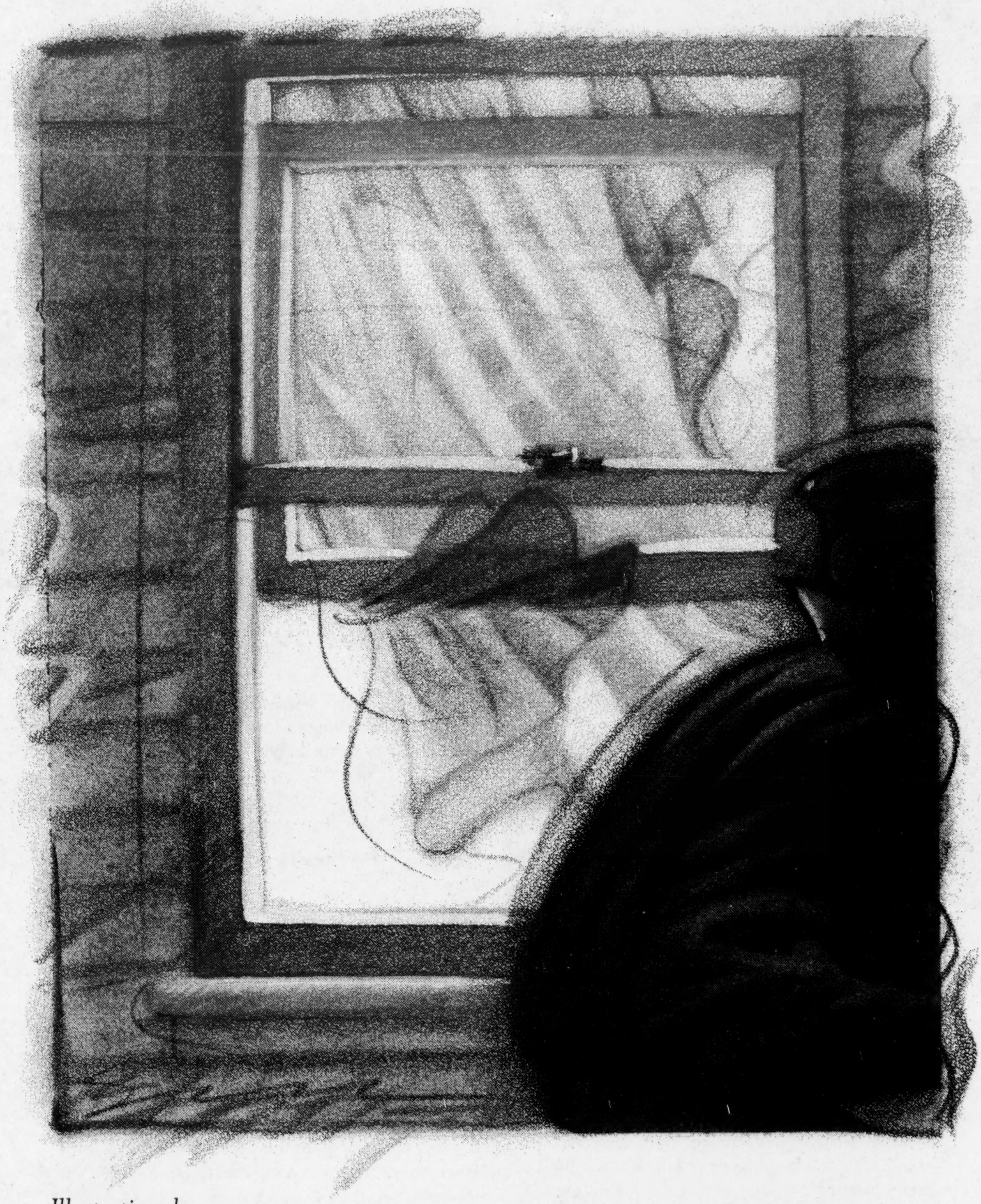
For a week, my skin crawled when I walked into my house. The sheets of my bed were raw against my body and the air in my bedroom seemed contaminated in a subtle, sinister way. Several nights at the house of the patient I was nursing, I let my heart settle and tried to figure out how to work with these difficult feelings, how to undo my daughter's sudden fear and how to make our house into a home again.

One night, I found myself obsessed with the words of Christ: "If a man takes your coat, offer him your cloak as well." I sat with these words for several hours and then at 3 a.m., I burst out laughing. I knew what I had to do. This was the second gift that Jimmy inadvertently left in his wake — he afforded me passage into the realm of the preposterous. I sat down and wrote him a letter beginning: "Because you stole my VCR and phone answering machine, I offer you this gift. I know this must seem strange to you . . . "

I was well aware that the predictable solutions did not serve me. For many reasons, I didn't want to call the police. I rejected out of hand Dan's suggestion that we kick Jimmy's ass. But doing nothing left me feeling powerless, which translated easily into looking at every other black guy as a potential thief. So I decided to offer Jimmy a gift — an admittedly cheap variation of a ghetto blaster splattered with blue house paint — not as a bribe but with an accompanying request. I wrote, "When you burglarized my house, you disrupted the life of my daughter and frightened her. I'm sure you remember how frightening the world can be to a nine-year-old. So, I ask of you this — please leave our home alone. We have nothing more of value to steal and your trespassing would serve only to increase the fear in the heart of a young girl. Beyond that, of course, if you want to return what you have stolen, the kindness would be appreciated. If not — so be it. Regard these as early Christmas presents from a stranger and think of me when you use them. Whatever situation led you to rip me off, I sincerely hope that in time it will find healing."

The next afternoon, my daughter awoke me when she returned home from school. I knew there were things we had to do to set our house in order. We sat facing each other, burning sage and praying that the smoke return the house to its former tranquility. Afterwards, Nicole added, " . . . I pray that if our burglar is poor that what he stole will help him survive." We took the lit sage and thoroughly "smudged" the house — she cleansing her room and me, mine.

Michael Ortiz Hill is a poet, single father and freelance Buddhist monk living in Santa Cruz, California. —*Richard Nilsen*

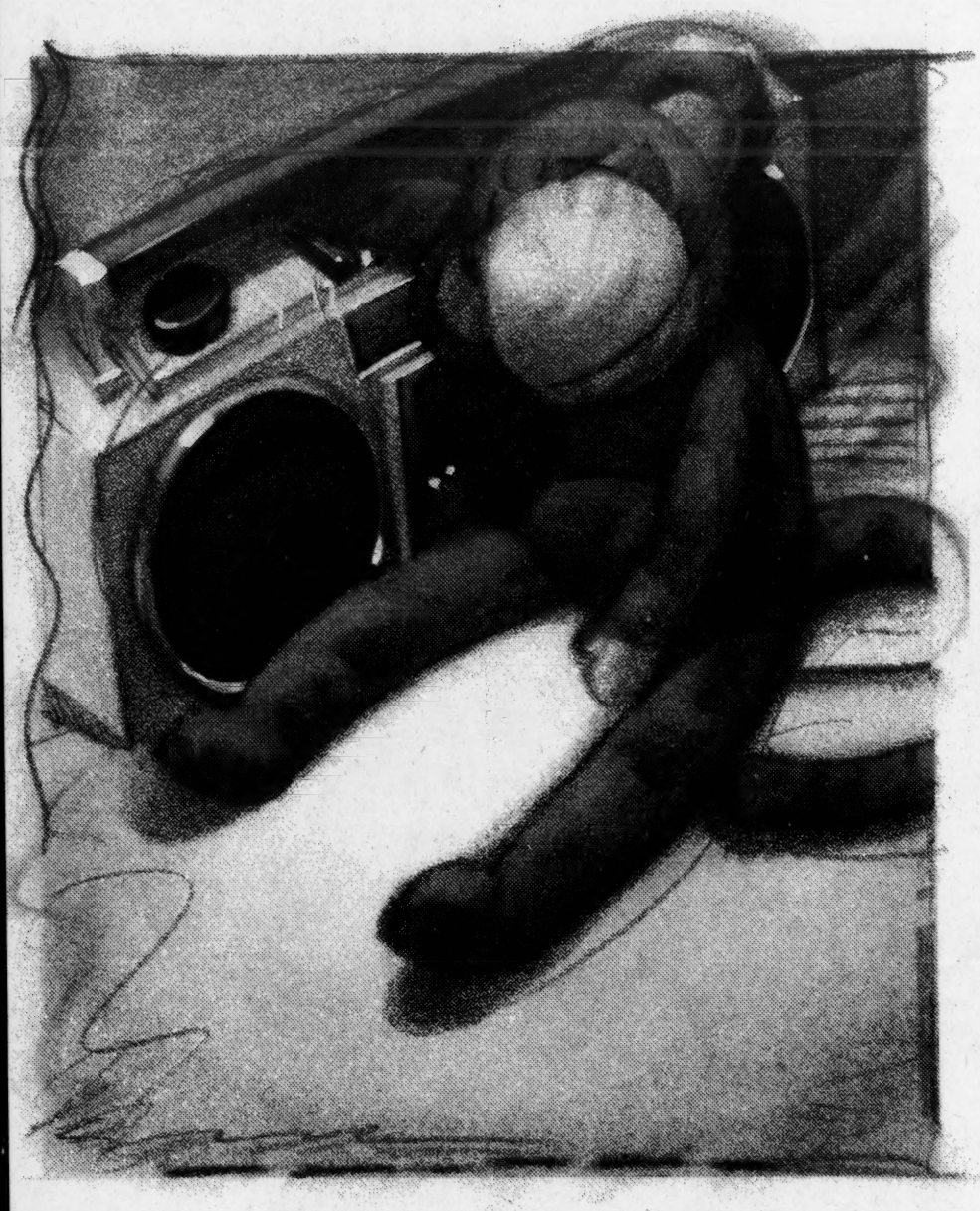


Illustrations by
Sally Wern Comport

IF THERE IS a delicacy and care with which one approaches a child about the mysteries of sex and death, how much more careful must we be when teaching the mystery of how messed up the world is. That night, after some hesitancy, I decided to fill Nicole in on some of the particulars of the burglary that I had withheld to preserve her sense of safety — particularly, that I knew Jimmy was an acquaintance of our friend Dan, that I'd met him briefly, and also that he was a cocaine addict. I read her the letter which she took in quietly and then, spontaneously, she gave me her stuffed monkey to pass on to Jimmy. So I added a P.S. to the letter:

"My daughter offers you this stuffed animal to pass on to a child you may know. Since you have frightened one child, I thought you'd appreciate the opportunity to make another one happy." ►

This moment between Nicole and myself alone made the burglary worthwhile.



My attempts to deliver the letter to Jimmy have taken me in and out of both friendly and frightening situations with local black people causing me to confront my own racism. For example, one morning when I found out through the grapevine to whom Jimmy had fenced my VCR, I resolved to go to their house that evening armed with my letter, cassette player and stuffed monkey. But as the afternoon wore on, I found myself obsessively imagining and reimagining the scene. Sometimes, I entered it with a naive and generous heart, other times it played itself out as a bizarre act of passive aggression against potentially dangerous strangers towards whom I was afraid to admit my fury. Or still again, I imagined a long-awaited opportunity to be a "missionary to the savages." My egotism and my timidity duked it out so that by nightfall, I was totally exhausted, and in the end was satisfied to drink a glass of wine and go to bed early.

On the other hand, sometimes the courage to be ridiculous descends like grace and one is compelled to step off the edge of one's poetry into the unknown. Exactly this happened the morning after Dan told me, "I think Jimmy is dead. Yesterday an ambulance rushed him to the hospital on an over dose and no one has seen him since."

Skeptical though I was, my heart sank. How quickly things change. I was surprised by the kinship that had gathered in me towards my "beloved enemy." At 9 a.m. the following day, I walked through the doors of Community Hospital clutching my offerings and feeling alive with the redemptive energy of the village idiot.

After inquiring in Emergency and on the Medical-Surgical floor, I was finally directed to Intensive Care. In one room, I saw a black man strapped down, sedated, IV bleeping, liquid dripping into his nose through a nasogastric tube. Apprehensive, I approached him, but on closer examination, I saw it wasn't Jimmy.

The exhausted nurse on duty was exceedingly helpful. "I'm looking for a young black guy named Jimmy who was rushed in here on an overdose Wednesday afternoon," I said.

Checking the census, she asked, "What's his last name?"

"I don't know," I responded. She couldn't find him and tried calling the Neuropsychiatric ward at Dominican Hospital. No luck. "I just want to know if he's alive," I said, suddenly feeling the gravity of it. She called the coroner but they knew nothing of Jimmy either.

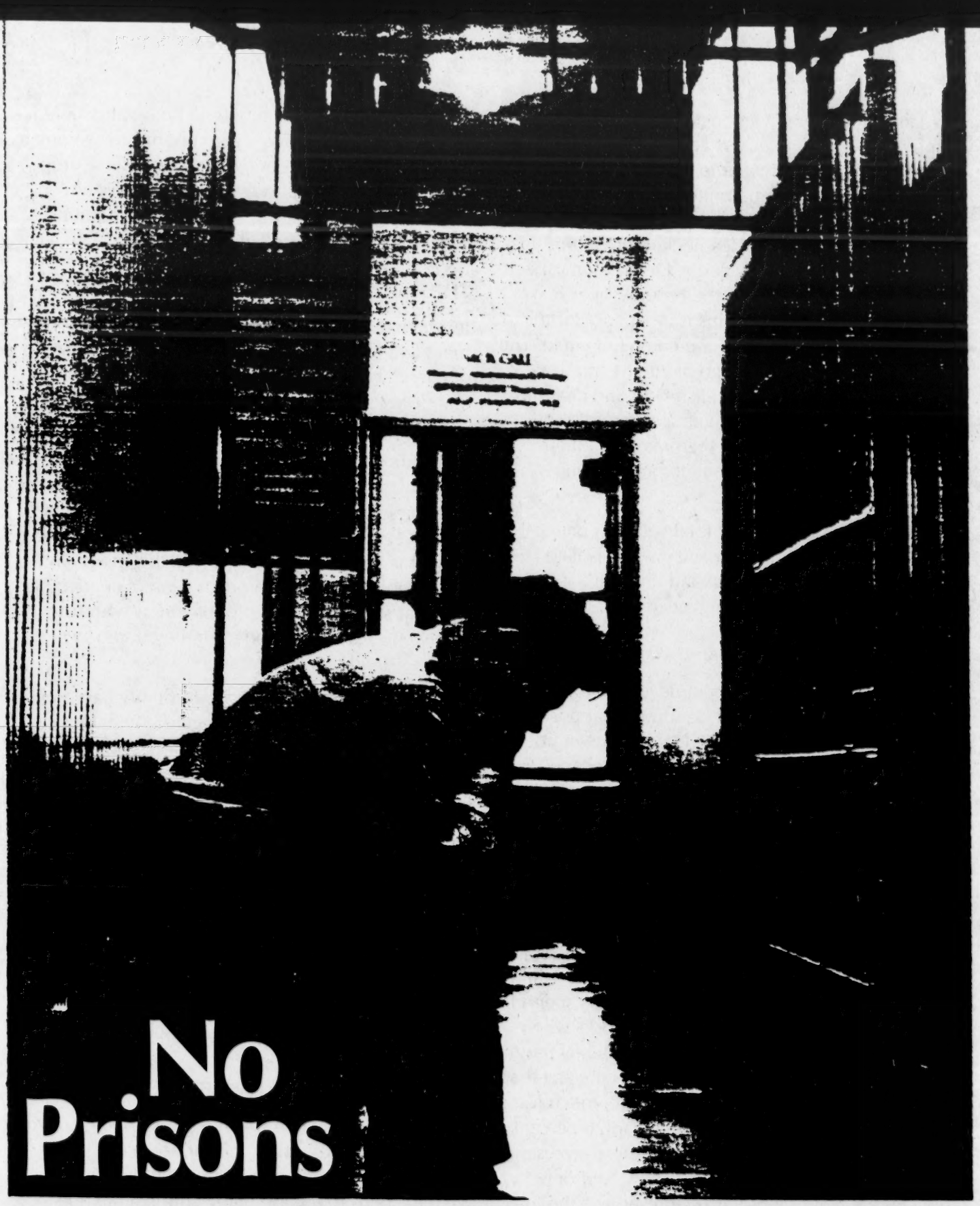
She asked, "How long have you been friends with this man?"

"Oh, about two weeks. We only met once." After hesitating a moment, I beamed, "Actually he's my burglar. I've got a couple of gifts for him from me and my kid." The tiredness in her eyes gave way to laughter as she recognized that this man concerned about his "friend" was, in fact, a visitor from another planet. It was best not to explain.

I never did find Jimmy, dead or alive, so I spray-painted an epitaph to the whole crazy venture on the wall of a neighborhood warehouse, quoting James Baldwin: "Being alive is learning to make love with what you most fear."

The man who was a thief in the night thrust dilemmas upon me that yielded invaluable gifts:

The gift of facing my own racism; the gift of deepening my relationship with my daughter through a conspiracy of kindness; the gift of the opportunity to pass values on to her that are most precious to me; the gift of learning to answer violence with poetry; the gift of a more intimate involvement with the neighborhood I have lived in for the past eleven years. The final gift Jimmy left me, I pass on to you — the gift of the story itself. ■



No Prisons

Prison Exposures

The Only Real Alternative

BY BILL MOULDEN

DEADLOCK

Prisons are always in turmoil. As recent riots show, the only security is on the fence line — to prevent escapes. Inside there must be cooperation between staff and inmates to run the place. When that breaks down there is riot followed by what the system calls "deadlock," meaning that every inmate is locked in an individual cell and kept there for 24 hours a day. Few prisons have the cells for this and no system could stand the expense of operating prisons that way — with staff doing everything inside.

And now there is AIDS to contend with. In prisons

This non-traditional approach to criminal justice comes from a traditional career correctional officer. From 1955 to 1965 Bill Moulden was a juvenile and adult parole officer in the notoriously tough Texas correctional system. From '66 to '78 he taught college courses to prison inmates under a Vista program. From '78 to '80 he worked in half-way centers, helping new releases. He has a master's in correctional administration from American University. Currently he works as a jail inspector, and as a consultant for prison re-habs. He writes, "I used to get published in a Texas inmate journal, but that disappeared a couple of years ago. I think it was repressed by the authorities, but I couldn't find out anything to prove it. Now I rant and rave in private. My son-in-law suggested I send this to you. Maybe you could suggest a publication that would accept this if you can't." We did accept it because there is an important book leading to important debate lurking here, and I hope our publication of this piece encourages Mr. Moulden to write it. —Kevin Kelly

sexually active people are locked in with only their same sex. And drug abusers are still able to get their drugs and "works." Therefore, AIDS-producing activities are unofficially permitted. To restrict sexual contact to protect inmates from AIDS would require a program of permanent deadlock. Only in this would there be internal security. Deadlock has been in force for several years in the Federal super-max prison at Marion, Ohio. If this is an augury for the future, then prisons would have come full circle. The invention some 200 years ago of "doing time" as an alternative to corporal punishment and death for convicted offenders started with a system of "solitary confinement." Inmates then rarely left their cells and were forbidden from communicating with other inmates.

The reason for the failure of total solitary confinement is that most people go crazy when isolated. Some felt this to be as "cruel and unusual" as the corporal punishment it replaced.

PREVENTATIVE DETENTION

Maybe this expensive system of deadlock could be sold to the public if it could be shown that prisons have any effect on crime. But there have been no such findings. The latest trend in corrections research tries to show that chronic offenders are, at least, prevented from committing crimes on the general public while locked up. It is argued that, while imprisonment fails to rehabilitate inmates or deter others, locking up offenders for longer periods of time keeps these so-called "repeat offenders" at bay.

But these proponents of preventative detention fail to point out that the extra time these offenders spend in prison only serves to make them worse risks when they are released, not to mention the mischief they can cause inside. Also not mentioned is the fact that hardly any criminal offenders are caught, much less punished. Arrests are made on less than 20 percent of crimes reported to the police and these represent, at best, only half of crimes committed. And only about 10 percent of those arrested ever face the corrections process — probation or prison.

DOING NOTHING

What I'm saying is that a case can be made for doing nothing to caught and convicted offenders — that crime prevention is something that has to be built into the structure of the society. Our so-called criminal justice system is bankrupt — just not delivering on any of the goals set out for it. An illusion has been created by the operators of that system and their political supporters that without prisons there would be a chaos of crime in the streets. Yet the safest nations of the world and the safest states in the U.S. are the ones that incarcerate the fewest.

These conclusions were reached and documented by two presidential commissions in 1960 and 1970. Their recommendations gave impetus to the "alternatives" movement in the field of corrections. A great variety of community-based programs were instituted to provide judges with options to sending a convicted offender to prison. Included were drug treatment centers, halfway houses, training and counseling centers and programs of community service for convicted offenders.

THE FAILURE OF ALTERNATIVES

It is generally accepted that the alternatives movement failed. In fact it not only failed to stem the flow of offenders into prisons, but it served to *increase* that flow. Prison populations soared in the 1970s.

It is important to understand how the intended effect of this movement was reversed. In the first place criminal court judges never internalized the essence of the concept. They continued to give certain offenders sentences of incarceration. The alternative programs were assigned to people they normally gave probation to. And probation was extended back into that substantial group of offenders who usually receive no punitive action from the courts, save for fines or admonishments.

Now the bottom line for the community-based alternative is the prison. The message to the participants is "if you screw up here, you will be sent to prison." This is the same for those on probation. Well, of course, there were screw-ups, more so than with probation because the offenders in the programs were more directly challenged and more closely supervised and researched.

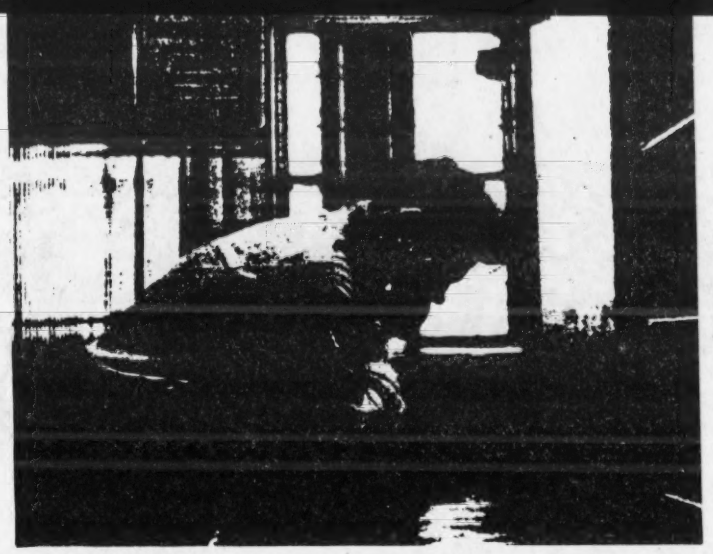
So the net of the corrections process was widened. The same number of convicted offenders flowed into the prisons directly from the courts as before. But added to these were the failures of the alternatives, which is how an approach gets turned around to have the opposite effect of the intended objective.

A WORKABLE COMPROMISE

I can imagine a system that has laws, arrests, conviction of offenders but takes no further action other than to publicize the offender's deed. It is, in fact, what happens to a good many criminal offenders who are affluent enough to show up in court with a program of community service and professional treatment to offer the sentencing judge. There is no data on this, but I think it works for most offenders because the impact of the arrest and conviction has a great impact on the offender's family, friends, and associates. Their pressure often does the trick.

I can't imagine a generalized no-punishment approach getting serious consideration from among our present-day leaders nor from the general public in this socially regressive era. But there is an intermediate plan that might get on the table for discussion.

What you do is give *everyone* convicted of any criminal offense a one-year sentence, as they do in most Scandinavian countries. Such sentenced people would be turned over to a committee of community people and professionals at their local level



— the county jail or the city police precinct station. The committee would work out a one-year program with each convicted offender that would provide them with counseling and guidance, training and job placement if needed, and which would extract from them during this year a reasonable amount of community service or victim recompense.

The committee would have the power to incarcerate these sentenced offenders for short periods if and when they feel that they are in danger of returning to their criminal behavior. A lot of crime is episodic and we usually release the offender on bail while he is still in the episode and then send him off to prison when it is over.

But when the year is up, the committee would have no further power to compel program participation by the offender. However, the services of the center would remain open to him indefinitely.

With such a system in place, all of the prisons could be closed. I would advise that they be torn down and bulldozed away. There is something about an empty institution that seems to draw leaders to put some class or other of people into them.

VIOLENT CRIMINALS

If you have stayed with me this far, I am sure you are wondering about those criminals who maim, rape and murder. Well, you should be aware that there are not all that many of them. Violence is involved in only about 5 percent of reported crime, but it seems to get about 95 percent of the media's reporting on crime.

But the answer to violent people exists now in law and custom. Anyone who presents a clear and present danger of committing violent acts can and should be committed to secure facilities to stay there until competent authorities deem that they are safe. It is exactly what was properly done in John Hinckley's case and can be done in many others. The professionals will not always be right in their decisions, but they'll be more accurate than parole boards, corrections officials or public opinion polls.

A SOCIETY WITHOUT PRISONS

I don't claim that my system will decrease crime, but neither will it increase it. This is because the causes of crime are out here in the structure and fabric of our communities; in the economic systems, the processes of discrimination, the opportunity structure and the effectiveness of moral instruction.

Prisons, or what we euphemistically call "the corrections process," offer no answers either for the causes or solutions to crime. I think a no-prisons policy would reduce recidivism rates because convicted offenders would no longer be exposed to long terms in the "schools for crime" that our American prisons are.

This is a non-punitive approach which will forever conflict with the deep and tenacious punitive traditions that are found in just about all of the earth's societies. Our modern correctional systems have tried to deal democratically with the conflicting punitive and non-punitive approaches. The basis of the system has remained punitive, but it's been overlaid with so-called rehabilitative or treatment approaches. This mish-mash results in a confused and ineffective operation as the bureaucratic systems stay in turmoil over theory and operating policy.

THE DARK ROAD

But now the realization that offenders are made worse by imprisonment is taking the punitive-minded systems down a road that has a dark destination. Offenders who have been labeled as hopeless are therefore given longer and longer prison terms. But it is becoming clear now that keeping them longer in prison increases their dangerousness when eventually released. More and more prisons filling up with more and more inmates who have been deemed hopeless, and therefore have no hope, make these institutions into tinderboxes that are unmanageable without great expense in construction and operating costs.

If our mindset is frozen on this punitive path it will not be long before the dark destination begins to become better defined. A "final solution" will inevitably force its way into our consciousness. The return of the use of the death penalty for a few crimes is already a reality and has become commonplace. If you think this road has not been traveled before, you know little of world history.

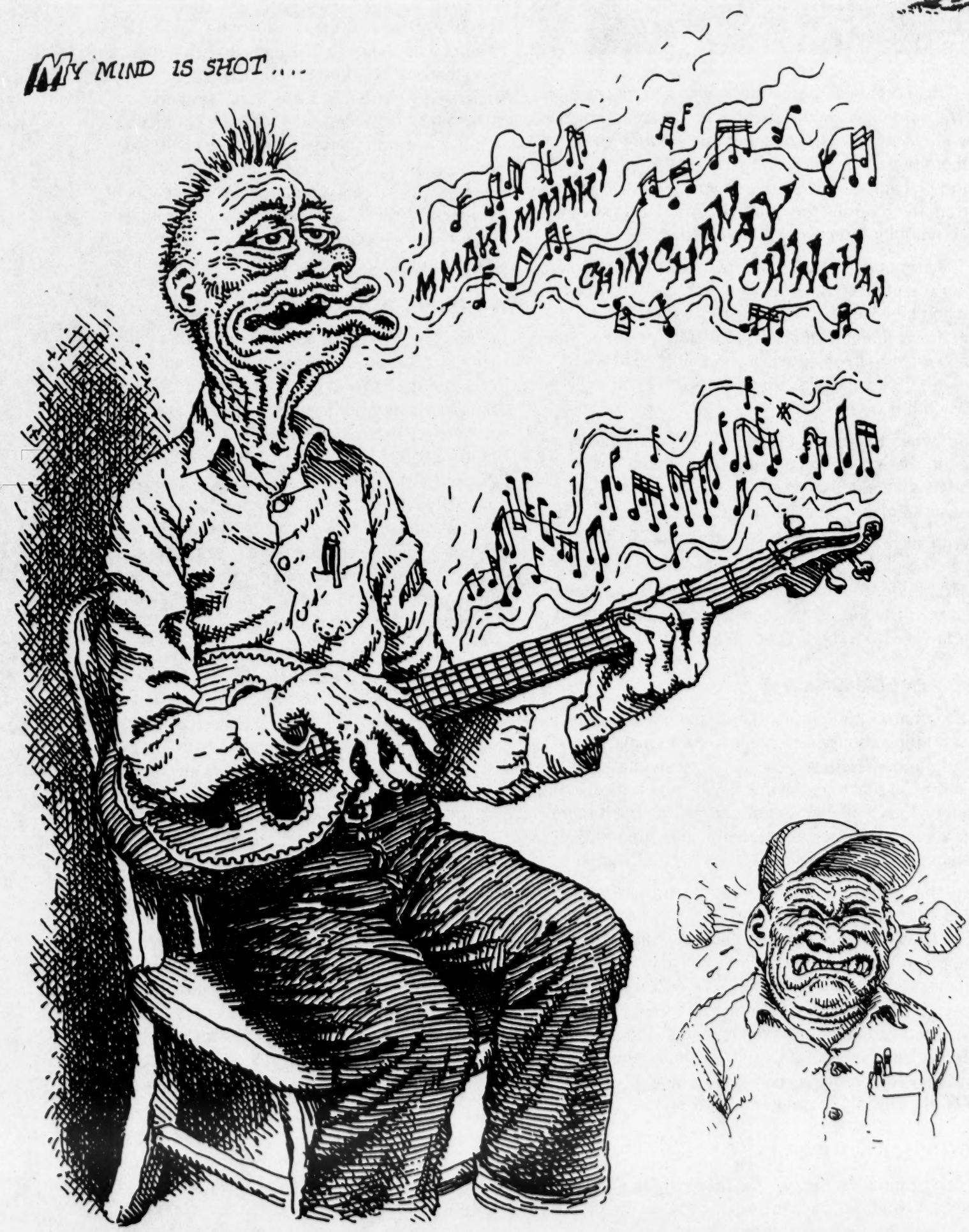
A BETTER WAY

I say keep arresting offenders and bringing them to justice. But keep them with us in the community. If they offend again, we'll try again to show them a non-criminal way. If they keep offending, keep trying. If they are violent, then, for sure, commit them to secure but therapeutic institutions until the best evidence available says to give them another chance.

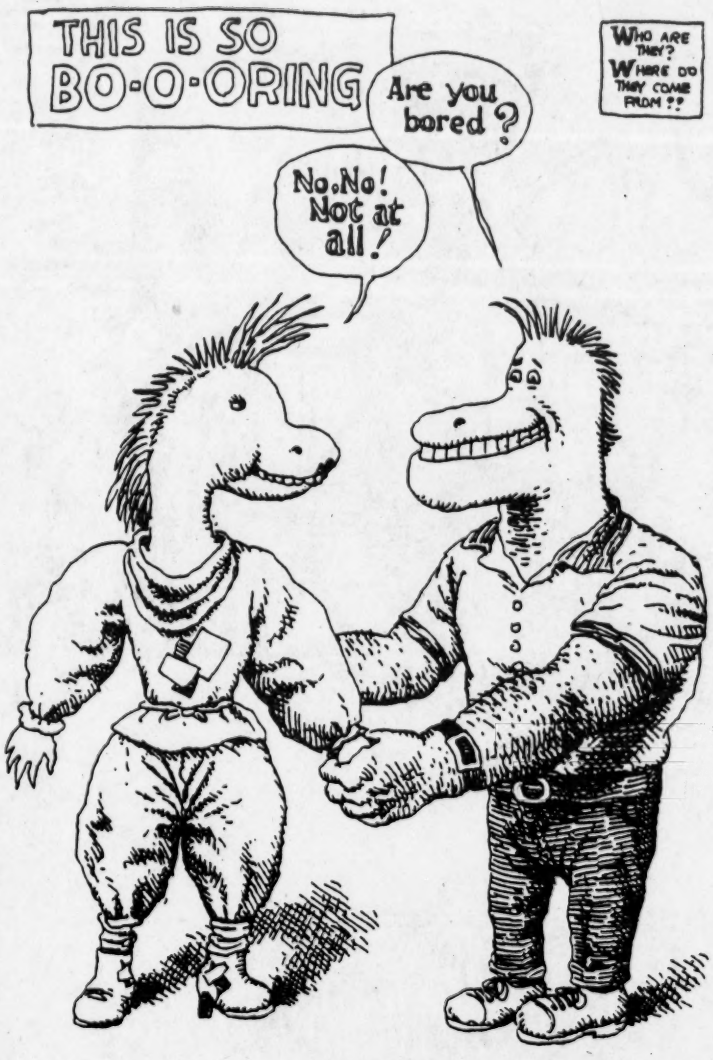
This is a way that has hope and gives hope. It is a way that is not cruel or unusual. And, incidently, it would cost but a fraction of what we spend now on destructive locking-up. And no-prisons won't increase your danger from crime since so few offenders are ever dealt with by corrections anyway. The only true crime prevention lies in working to perfect our society so as to include all people in legitimate opportunities for survival and self-fulfillment. ■

Snippets From R. Crumb's Recent Sketch Book

MY MIND IS SHOT....

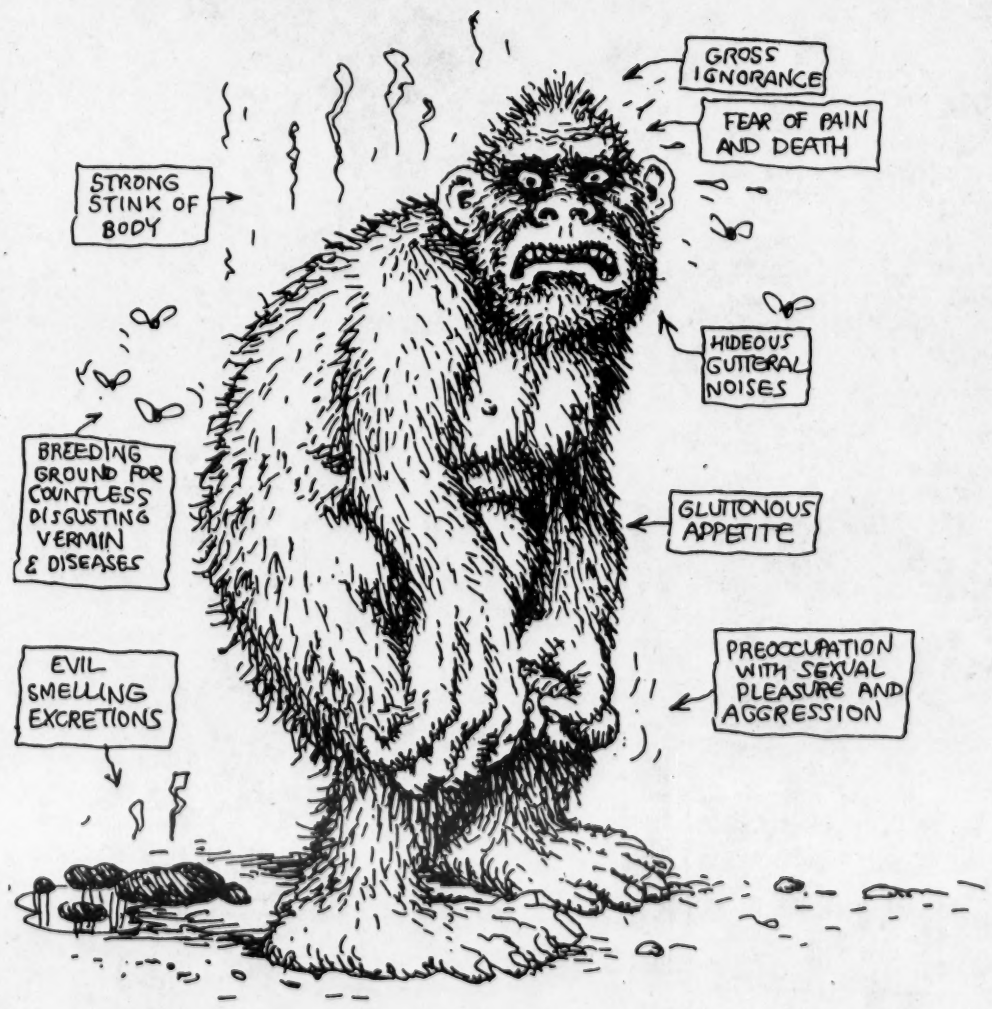


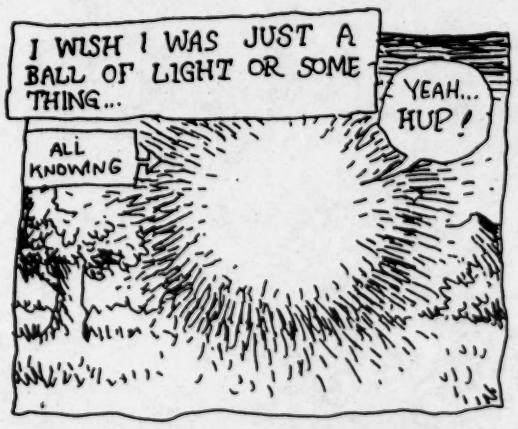
JAN. 8TH, 1987



Caryn Leschen

I HATE MY ANIMAL NATURE!





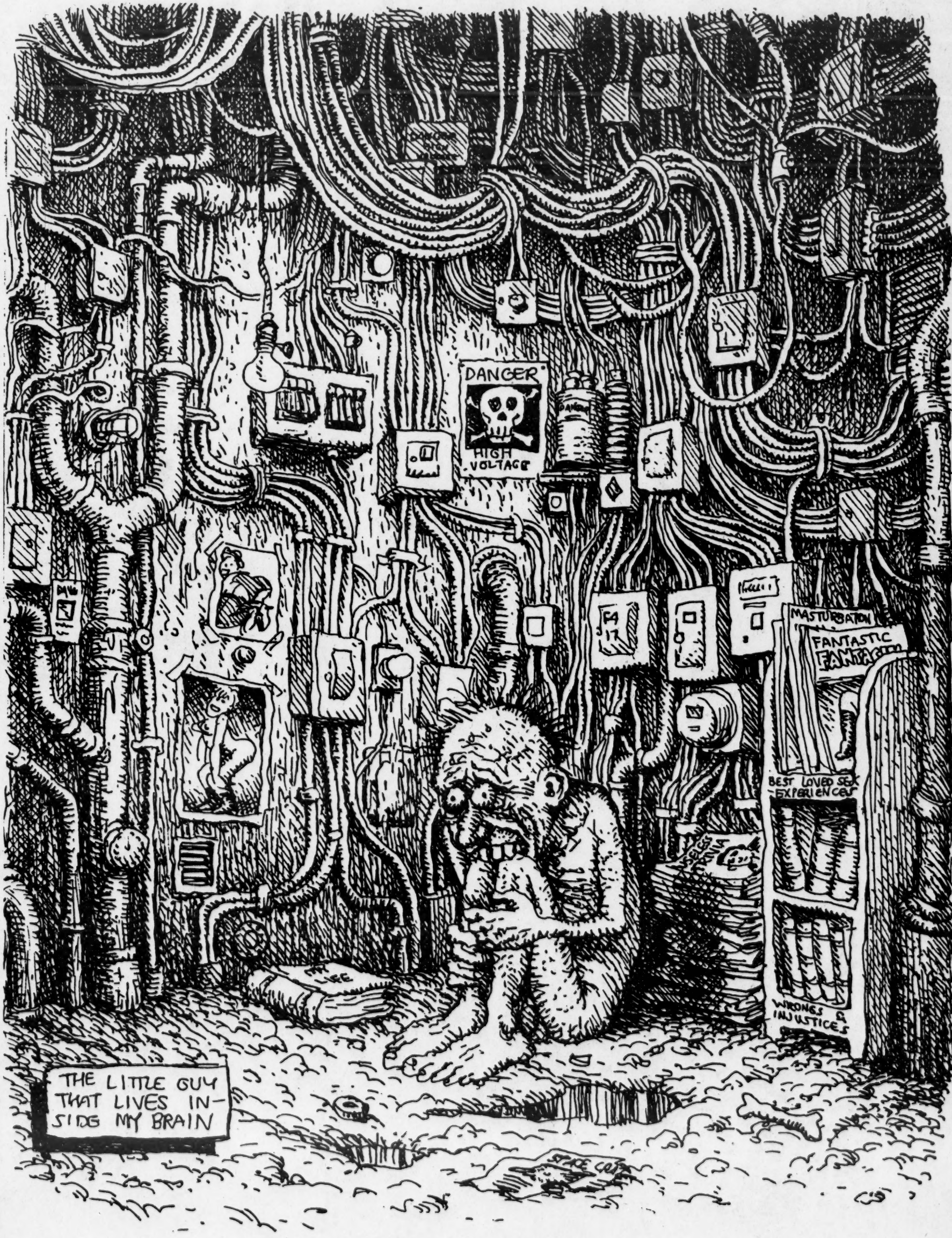
I'M DYIN' OVER HERE!
I NEED A DRINK!
NYAW AW!

OH SHIT!

IF YOU DON'T PLAY WITH ME I WON'T BE YOUR FRIEND

"I'm a nut, I'm a pest..."
HEY, I'M A LITTLE DISORIENTED HERE.. CAN ANY-BODY ANSWER ME A FEW QUESTIONS?
WHAT IS THIS THING WE CALL "FREEDOM" HERE? WHAT EXACTLY IS IT THAT WE'RE FREE TO DO? WHAT ARE WE "FREE FROM??
BACK UP, CHUCK... DON'T LET IT BUG YOU, MAN... THE MORE THINGS CHANGE, THE MORE THEY, LIKE, STAY THE SAME.. YOU DIG?
ARE WE REALLY "FREE"? OR IS IT JUST PROPAGANDA?? SOMETIMES I DON'T FEEL VERY FREE... BUT THEN SOMETIMES I DO.... IS IT WORSE IN OTHER PARTS OF THE WORLD???
THE WISE OLD HIPSTER
CONSULT HIM FOR ADVICE

IT'S THE GRAVITY OF THE SITUATION THAT FINALLY GETS YOU!

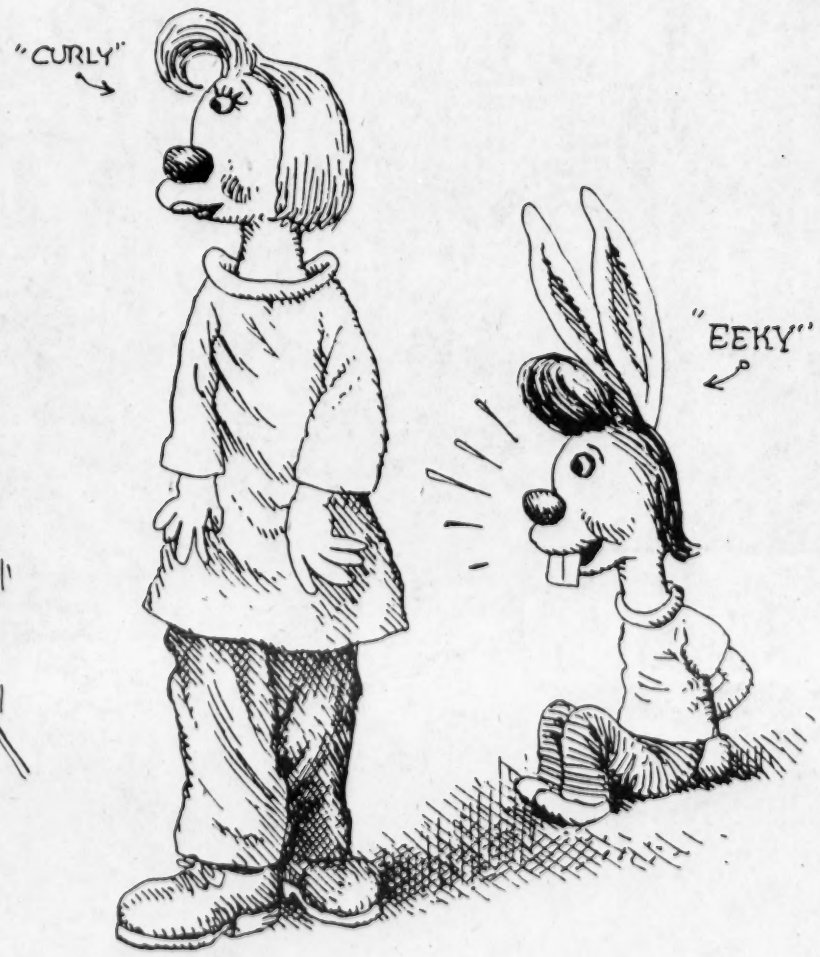

DANGER
HIGH VOLTAGE
MASTURBATION
FANTASTIC
BEST LOVED SEX EXPERIENCES
WRONGS & INJUSTICES
THE LITTLE GUY THAT LIVES INSIDE MY BRAIN
SPACE CATS

REMEMBER TO:

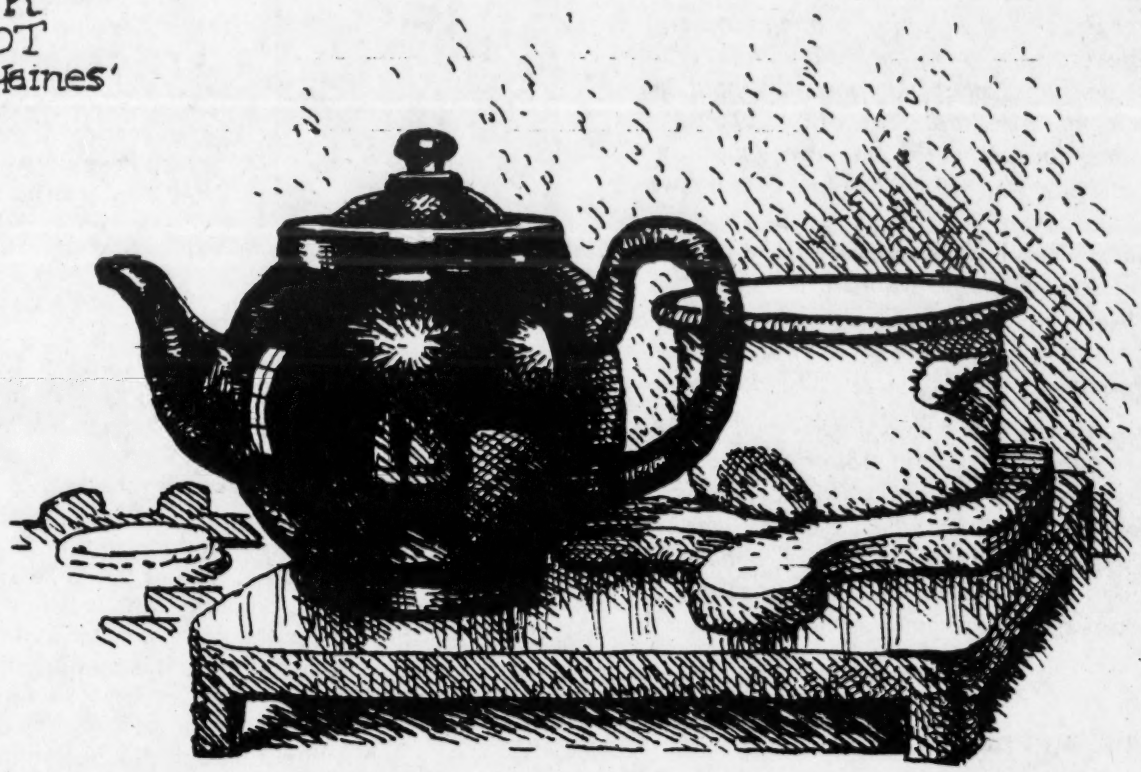
KEEP STILL...

YOUNG WOMAN PATIENT
IN SURREY COUNTY LUNATIC
ASYLUM, ENGLAND, 1850s
PHOTOGRAPHED BY
HUGH DIAMOND

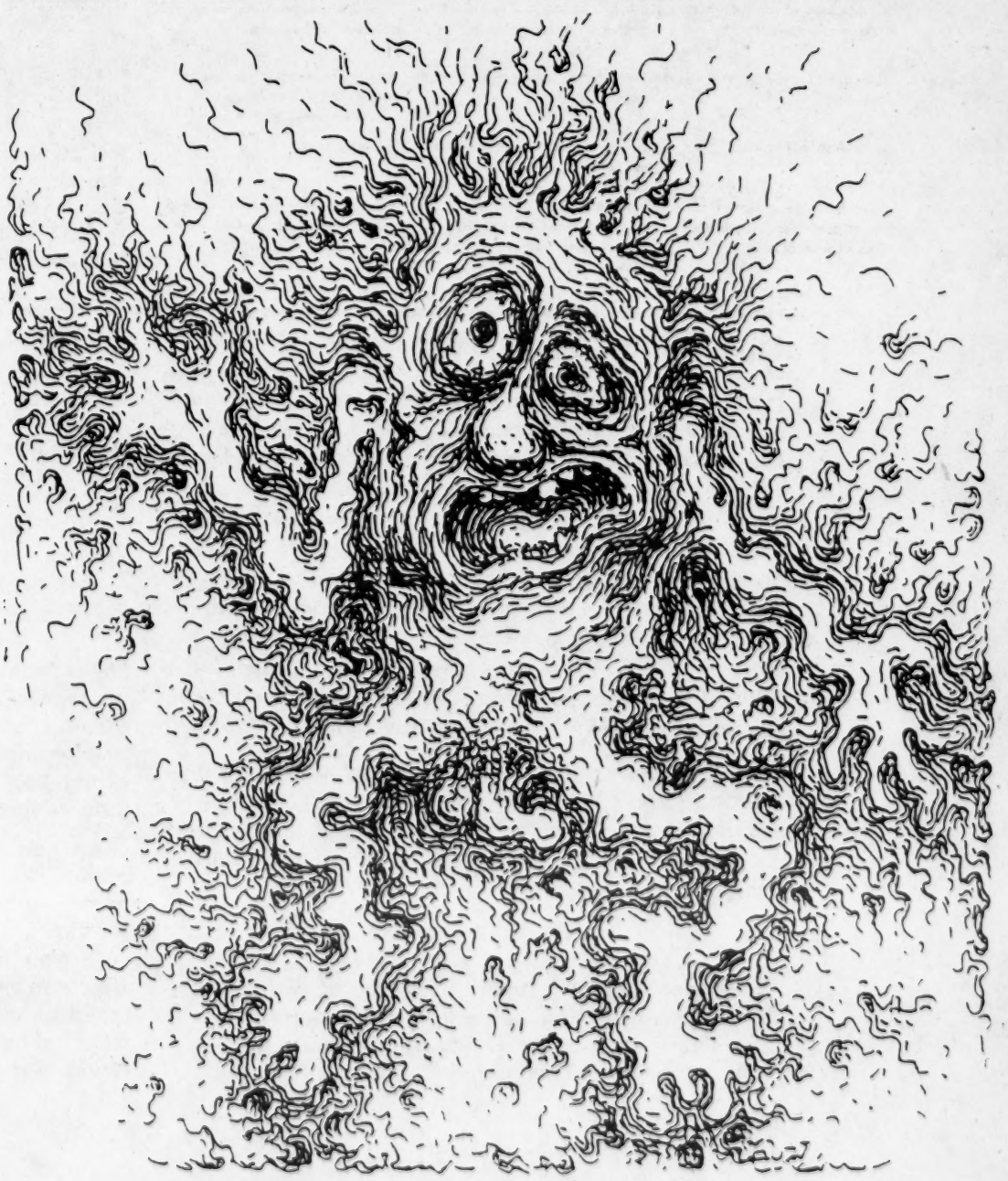
SOPHIE DRAWING
DEC. 1ST '86



BLACK
TEAPOT
at Jim Haines'



Y-Y-YUCKH-H-H!



COPIED FROM
A BUNCH OF
CHARACTERS DRAWN
BY SOPHIE

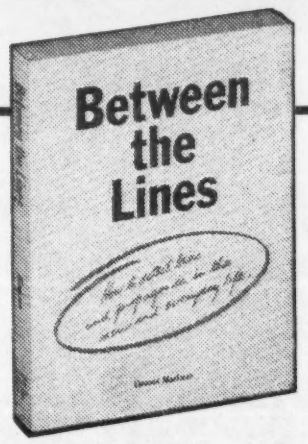
MARCH 26TH '86

Between the Lines

Here's another book filled with bias, propaganda and other forms of wordwarp. What makes it unique is that it explains these activities rather than perpetuating them. The author, a former translator, teacher and OXFAM staffer in Canada, focuses on the many ways that raw information can be twisted before it's sent out to the world disguised as truth. She shows how to decode the daily newspaper and TV news with examples of coverage of both third world and domestic events. There's also a long excerpt from George Orwell's famous essay "Politics and the English Language," a primary work on propaganda analysis.

As one who spent many years in a state of gullibility so extreme that I equated all printed matter with Absolute Truth I find this book most rewarding. It's designed as a text for high school or college, which is where I wish I'd read it, but it's quite satisfactory for casual reading. For anyone who feels the mainstream media are completely reliable, this book should be a mandatory read.

—Dick Fugett



Between the Lines
Eleanor MacLean
1981; 296 pp.
$17.95
($19.95 postpaid) from:
University of Toronto Press:
Black Rose Books
340 Nagel Drive
Cheektowaga, NY 14225
716/683-4547
or Whole Earth Access

Profiles of propaganda, bias, and point of view

	PROPAGANDA	BIAS	POINT OF VIEW
Relation to power	Necessary	Not necessary	Not necessary
Medium used	Mass media (plus any other appropriate combination)	Possibly mass media but not necessarily	Possibly mass media but unlikely
Audience	Large numbers	Possibly large numbers	Possibly large numbers
Declared motive	Intentionally disguised	Sometimes disguised, more often unclear; biased person may be *unaware* of the interests they are serving	Stated in communication; interests in presenting a particular point of view are evident
	Is conscious of the real interests s/he he represents	Can be unconscious of the real interests s/he represents	Person is conscious of the *real* interests s/he represents
Techniques used	Propaganda devices and faulty reasoning	Propaganda devices and faulty reasoning	Never propaganda devices (depending on quality of work . . . no faulty reasoning, etc.)
	Sources often disguised	Source may or may not be mentioned, but not necessarily intentionally	Sources stated
	Initial message given in such a way as to elicit an *uncritical* acceptance of point of view	Initial message given in such a way as to elicit an emotional or uncritical agreement with the biased source	Initial message given in such a way as to elicit a *critical* response

•

Begging the question. When people beg the question, they are assuming the truth or falsity of what they are trying to prove. When a person argues that someone is not a great blues singer because there are no great blues singers alive today, s/he is assuming the truth or validity of a larger statement, which includes the one he started to prove, and hence is begging the question. When an editorialist says, "The disgraceful and pointless practice of strikes must be put to an end," s/he is assuming that strikes are disgraceful and pointless, instead of trying to prove them to be so, and therefore is begging the question. One way of begging the question is so common as to go almost unnoticed. For example, "Rightly or wrongly, the company has threatened to pull out of the area if it doesn't get the concessions from the government. Therefore we should pressure our Member of Parliament to see that the company gets them."

The way it works, in grammatical terms, is to place the major assumption in a minor part of the sentence: the question being begged (namely, *whether the company will pull out*) is a dependent clause and the principle clause, the main focus (that is, *we should pressure government to give the company what it wants*) remains uncontroversial.

•

If you simplify your English, you are freed from the worst follies of orthodoxy. You cannot speak any of the necessary dialects, and when you make a stupid remark its stupidity will be obvious, even to yourself. Political language — and with variations this is true of all political parties, from Conservatives to Anarchists — is designed to make lies sound truthful and murder respectable, and to give an appearance of solidity to pure wind. *—George Orwell*

Deadline

Here's another good media watchdog journal, but with a more specific focus. ***Deadline*** *is the bulletin of the Center for War, Peace, and the News Media, founded in 1985 under the auspices of New York University. It deals only with Soviet-US issues, including internal developments in the USSR and defense issues in the US. Funded primarily by foundations, the Center is also developing an excellent media archive, with files on major US newspapers plus videotapes of news broadcasts from the three major US TV networks. The archives are open by appointment, and there's an interesting plan being developed to make them computer-accessible in the future.*

Deadline*'s tone is less partisan than* ***Extra!*** *or* ***Propaganda Review****, which will strike some readers as balanced and others as bland. In either case, the Center puts out good information and should be considered a must-read for anyone interested in US-Soviet relations.*

—Dick Fugett

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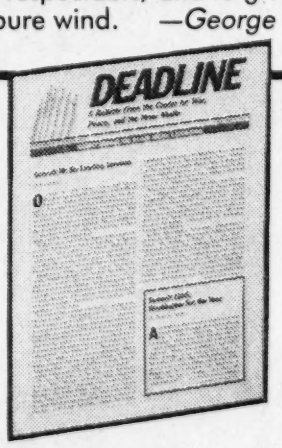
Attention to Amnesty's findings varied greatly. But, overall, the report [cataloging the status of human rights in 129 nations] was not considered news by much of the news media. Several newspapers, including *The Wall Street Journal* and *The Washington Times,* did not cover the report. *The Washington Post, The Christian Science Monitor,* and *USA Today* covered it only with the briefest of wire dispatches. The three network evening news programs, as well as the three newsweeklies, uniformly ignored the Amnesty report.

Those newspapers that did cover it generally looked for a more charged news hook than the one provided by the human rights group. Several news organizations opted for the most obvious peg for an American audience, focusing on the many human rights violations in the Soviet Union or on nations out of favor with the current administration. A favorite hook contrasted Soviet crimes reported by Amnesty with the official Soviet policies of *glasnost* and *perestroika.*



Deadline
Lee Feinstein, Editor
$25/year
(6 issues) from:
Center for War, Peace,
and the News Media
10 Washington Place
4th Floor
New York, NY 10003
212/998-7960

Extra!

Fairness and Accuracy in Reporting (FAIR) came about when founder Jeff Cohen, a former ACLU lawyer, decided it was time to quit grumbling about media bias and do something instead. What he and a few friends created was an organization that not only scrutinizes the information we're given as "news," but also responds when gross errors are detected.

Their journal ***Extra!*** *slices through the baloney in commendable fashion. With quotes, pictures, and excerpts, it shows exactly how the mass media presented a story, then offers its own scrupulously documented commentary. Insights and conclusions are left to the reader. Topics have ranged from the Moonie-owned* ***Washington Times*** *to Soviet TV coverage of Afghanistan. Compared to* ***Propaganda Review*** *this is more immediate stuff, analyzing headline stories as opposed to investigating background and theoretics. Taken together, they're not only complementary, but salutary.*

FAIR also puts on conferences, organizes phone tree campaigns, and focuses public attention on specific issues, such as Contra aid. This is a creative group encouraging new ideas, and I've been sufficiently impressed to fork over my own $24 to watch them develop.

—Dick Fugett

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The principal media obsession during summit week was Gorbachev's public relations acumen, as though the Kremlin had somehow cracked a prized American code. . . . A frontpage *New York Times* (12-10-87) headline chimed: "Soviet Visitor is Turning On All His Charm."

Curiously, a later *Times* edition changed the headline to "Soviet Visitor Mixes Charm With Venom." The byline changed as well, from Joel Brinkley to Andrew Rosenthal.

Extra!
Martin A. Lee, Editor
$24/year
(9 issues) from:
FAIR
130 W. 25th Street
New York, NY 10001
212/475-4640

But the text changed only slightly, with the addition of several paragraphs describing Gorbachev's meeting with news executives. *Extra!* contacted the *Times* writers for an explanation. When asked about the venom, Rosenthal said that Gorbachev took a hardline position at the meeting. "You might think this is a cop-out," he added, "but headlines are written by editors not reporters . . . I didn't use the word 'venom' in my story."

Propaganda Review

Watching a 1984 Reagan TV pitch called "Morning in America" so impressed a group of journalists that they began investigating how the media is used for political goals. The propagandizing of US nationalism had surpassed even Orwell's predictions in its use of language, picture and symbol.

The group's initial research was published in the ***Media Alliance Newsletter****, the San Francisco journalism review. Response was excellent and the project has now advanced to a slick quarterly magazine. It doesn't stress the media watchdog aspect as much as* ***Extra!*** *does, but looks more closely at the foundations of propaganda in politics, advertising, and entertainment, with stories that are longer and more reflective.*

Like FAIR, the group plans to go beyond publishing and host public forums that will encourage the general population to respond to egregious media deeds. Consider the endless letters that outraged citizens write to Congresspeople's computers. That same effort directed towards a local newspaper editor who reprinted without comment the latest government disinformation might be far more energy effective.

Good new ideas come from lean, hungry organizations. The ***Propaganda Review*** *crew is in their fourth year now, and no one draws a salary yet. Besides qualifying for lean and hungry, they're demonstrably dedicated.*

—Dick Fugett

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Many terms in political discourse are used in a technical sense that's very much divorced from their actual meaning, sometimes even the opposite of it.

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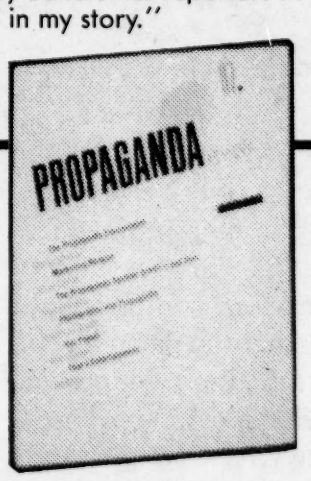


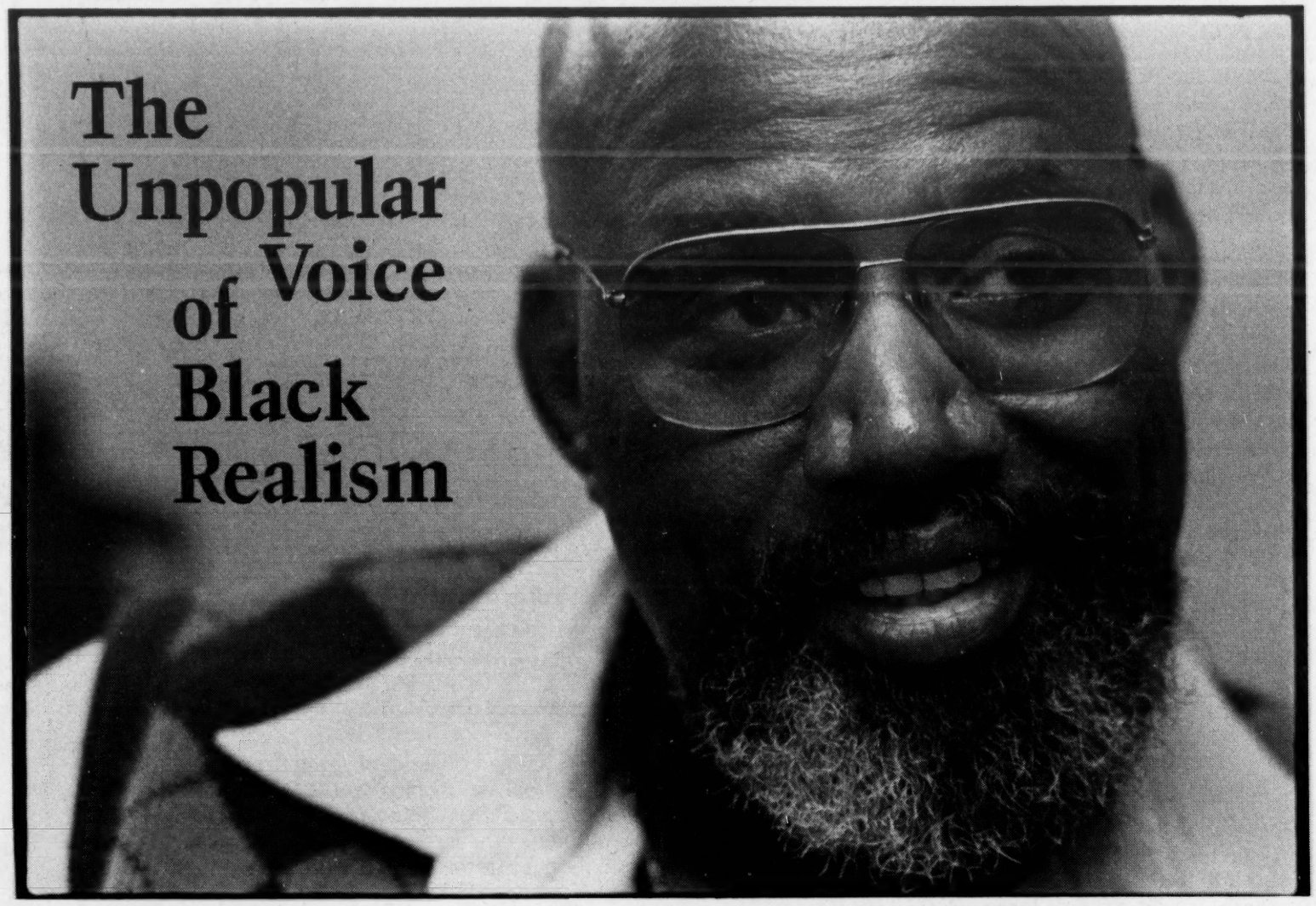
Take the "national interest." The term is commonly used as if it's something good for all of us. If a political leader says, "I'm doing this in the national interest," you're supposed to feel good because that's for you.

But if you look closely, it turns out that the national interest is not defined as the interest of the entire population. It's really the interests of small, dominant elites who command the resources that enable them to control the state — basically, corporate-based elites. Correspondingly, the "special interests," of whom we're all supposed to be suspicious, really refer to the general population. . . .

In both the 1980 and 1984 election, Reagan and his handlers identified the Democrats as the "party of special interests." That's bad, because we're all against the special interests. But if you asked who the special interests were, they listed women, poor people, workers, young people, old people, ethnic minorities — in fact, the vast majority of the population.

One group was not listed among the special interests — the corporations. In the campaign rhetoric, that was never a *special* interest, and in their terms that's right — because that's the *national* interest.

The Unpopular Voice of Black Realism



Mark Sarfati

TWENTY YEARS ago, Harry Edwards was considered one of the most hated men in America when, as a Cornell graduate student completing his Ph.D and teaching part-time at San Jose State, he tried to organize, with Ken Noel, a boycott of the Mexico City Olympics by black athletes to protest the condition of blacks in the U.S., continued U.S. support of the regimes in South Africa and Rhodesia, and the ongoing Vietnam War. The boycott failed, but an offshoot of their effort provided the world with one of the sixties' most dramatic images: two medal-winning sprinters, Tommie Smith and John Carlos, raising their fists in black power salutes from the Olympic podium and turning away from the American flag as the national anthem played.

Today, though, activist-scholar Edwards, age 45, is wildly successful, one of the most popular lecturers at the University of California at Berkeley and a consultant/mentor to the San Francisco 49ers and the Golden State Warriors advising players on a range of problems from drugs to personal finances to race relations; in the wake of the Al Campanis fiasco (the former Dodgers executive remarked on *Nightline* that "blacks lack the necessities" for management positions), he was named special assistant to the commissioner of baseball, Peter Ueberroth, with the task of assembling a pool of minority applicants for managerial positions. And if the ironies of his life aren't enough for him, he is perfectly capable of manufacturing his own, turning right around and hiring the fired Campanis to work for *him* in putting together the minority pool. And, he insists, he hasn't changed one bit in those twenty years.

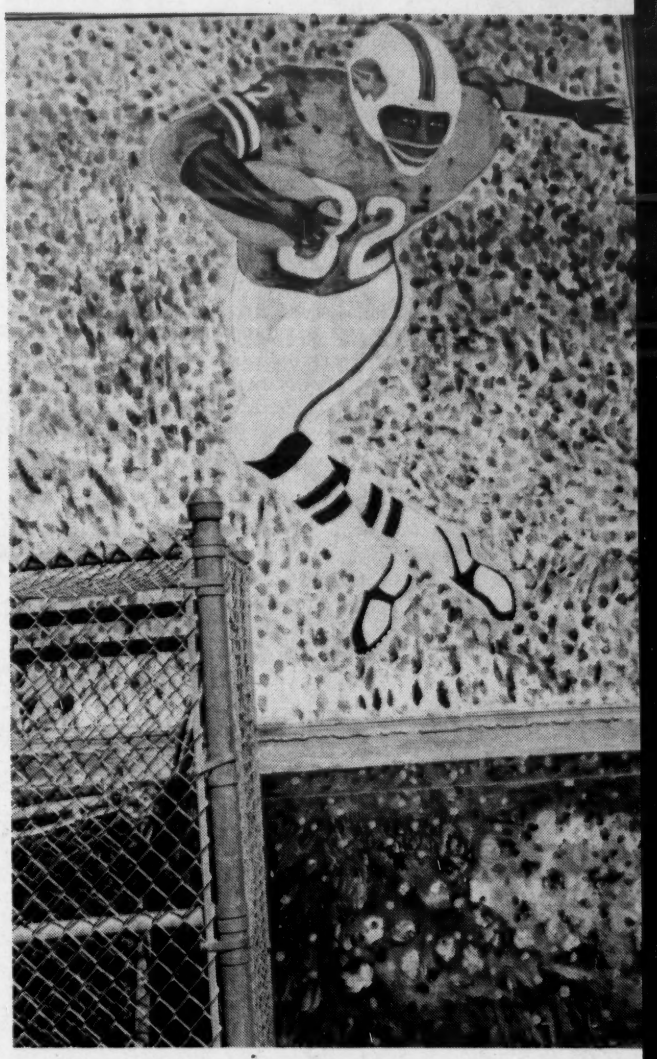
Michael Covino: *In your textbook* Sociology of Sport *you wrote of how the black athlete is accepted in some circles of American society in which black people are generally not accepted. His role status as athlete surpasses his role status as black person. Ironically, it seems to be your status as scholar — and your rejection years ago of the role of athlete — that has now made you acceptable in the management circles of sports where blacks generally are not accepted.*

In a passing remark in a conversation on The WELL, I mentioned that I wasn't aware of anything "conceptually new" in black studies, that the issues mostly seemed to be the difficult work of putting what was learned 20 years ago into practice, and if there was new thinking, would someone let me know? A few WELLbeings sent suggestions, but the one that kept us turning pages was this article, reprinted (condensed here) from the local muckraking weekly, The East Bay Express. *Harry Edwards made me gasp, smile with the irony, and squirm uncomfortably as he interfered with my liberal/conservative prejudices. He didn't say what he is* supposed to. *—Kevin Kelly*

Harry Edwards on racism in athletics

INTERVIEW BY MICHAEL COVINO

Tim Gonzales



Harry Edwards: I don't think it's a matter so much of my being acceptable as my being *needed*, and there's a big difference. In fact, that's the whole situation with the black athlete. He's needed in many circles. The people I work for I respect a great deal as human beings. But I don't think it's just an issue of them all of a sudden just liking black people as distinguished from athletes.

I'm not sure whether you've traveled a long way since 1968 or whether the world has, but now it seems the sports establishment, which once loathed you, is inviting you in, seeking out your advice. Why? What's happened in the interim?

I think that the problems I discussed twenty years ago are now evident to everyone. In twenty years we've moved from a discussion of whether or not there *is* a problem to a discussion of how to solve the problem. And increasingly there are those inside the sports establishment who are convinced that my perspective is the best perspective in terms of effectiveness and the most rational and judicious way to proceed, and that's how I wound up working with the 49ers and the Golden State Warriors and major league baseball and pretty soon the NCAA [National Collegiate Athletic Association]. If you go back and look at *The Sociology of Sport, The Revolt of the Black Athlete,* the lectures I gave back in '67, '68, '69, you see I'm saying the same thing today.

With regard to the Al Campanis/ Nightline *ruckus: What flashed through your mind at the All-Star party at the Kaiser Center when someone tapped you on the shoulder and said, "I want you to meet somebody — Al Campanis"? Was there a moment's hesitation in shaking his hand?*

No, none at all, because I didn't see him as the enemy. Al Campanis represents literally tens of millions of Americans whose basic problem is not so much racism as it is being locked into a tradition of seeing blacks in a particular way, a tradition which happens to be racist. They're afflicted with the disease and don't even know it. It's a disease that's afflicted black people, too; they'll go to a white doctor instead of a black doctor, a white restaurant when they're really ready to dress up and spend some money, and prefer a white mechanic to fix their car. They too have been afflicted with this pervasive and infectious disease of racism. They too have come to believe that blacks do not have the necessities.

And it's not just in sports. It's across the board. We have about 24 black professors on this campus out of some 1,400 teaching staff. Somebody in the University of California system doesn't believe that blacks have the necessities, and that's crystal clear.

So I was glad to hire him.

So what's he doing for you?

First of all, he's working in terms of getting jobs for blacks who should be in baseball. His first assignment — and one he has carried out admirably — was to get Tommy Harper back into baseball. Tommy Harper was the coach at the Boston Red Sox who during spring camp had protested the fact that in Arizona there was a country club that gave passes to white Red Sox players but not to the black Red Sox players. And when he protested that the Red Sox team position should be that if black players can't go in, then no Red Sox should go in, he was summarily fired. Al Campanis' first job was to get Tommy Harper back in baseball, and he has gotten him a number of interviews, and Tommy's now talking to a couple of franchises that are very interested in hiring him if they can get the money right.

Your hiring of Campanis also struck me as something of a public relations coup.

Anytime you can do good, and do well, and be perceived as doing good and well, you have the best of all worlds. And a message from

that situation went to the owners that what is past is past. We have to turn a corner here. And a message went to the black community and black leadership, which is essentially the element that got Campanis fired, that we have to look through new eyes at the situation. To build a wall and tell him, "You racist dog. You'll never get back on this side of the wall again; you are always going to be perceived as the archetypal, prototype racist," is to slam the door on those tens of millions of Americans [who are like him] as well. The third thing was the message sent to American society as a whole — the media and everyone else — about how we must begin to approach this problem. We have to bring in people based upon their competence and expertise and not based on whether we like them or what they did in the past. To me it would appear kind of contradictory that now all of a sudden, after a ten-minute stint on TV, it's not all right anymore for Campanis, who's been in baseball forty years, to be in baseball. That's hypocritical. We're playing games with ourselves.

To this day I get mail saying, "Edwards, I don't understand why you hired him."

From who?

All kinds of people. Politicians, Operation PUSH, people in NAACP, white liberals. And it wasn't a Christian thing of "Turn the other cheek." It's a question of what is necessary to get the job done.

And many black baseball players don't understand. But athletes didn't understand twenty years ago that, "Hey, look: it's racism and discrimination that is at the very root of black participation in inordinately high numbers in baseball, basketball, and football; it's racism and discrimination that is the determinant force in demonstrable black athletic superiority." People say, "Hey, come on. You got to be out of your mind. You mean to say racism and discrimination is the reason that Dr. J and O. J. Simpson and the rest of these people are dominating in sports?" And I say, "Yeah, along with the very *negative* impact of integration." Which just completely floors a lot of people.

I was startled to discover from something you wrote that when you get down to it there're only 2,000 blacks in professional sports.

Oh yeah. In all capacities. I mean, that's *everybody.* Millions of blacks are wasting their lives away trying to get one of 2,000 positions which guys are literally committed to physical combat to keep.

In your autobiography you wrote, "Making coaches and athletic departments responsible for the academic counseling of scholarship athletes is like putting Dracula in charge of the blood bank." Have you ever found yourself actually chewing out the athletic department's advisors over their "advice" to blacks on athletic scholarships?

All the time. All the time!

I've felt over the eighteen years — I *still* feel — that any black parent who sends his kid or her kid to the University of California at Berkeley on an athletic scholarship should be prosecuted for child abuse. Because what the university's doing for them academically is absolutely nothing. It's a farce and a fraud.

In an EXPRESS *cover story last December on the UC Berkeley football rape case, a remark you made in the middle of the story generated more letters and talk than anything else in the piece. You said: "Feminists should be outraged [at the alleged gang rape of a UC coed by four black Cal football players and the administration's inadequate response]. But you should not be surprised if you bring a dog who's not housetrained [referring to the ghetto mentality of the black players] into the house and he shits on the floor. To attack the dog is not only short-sighted, but essentially unjust." Letters actually came in calling you racist, sexist . . .*

Yep. I don't give a damn about that. I've been called so many things.

What accounts for that sort of reaction?

Ignorance. Ideological stupidity. Blindness. The basic reality is that feminists and blacks should be together in terms of that kind of situation. Black athletes are brought onto this campus, exploited, not given the proper

Tim Gonzales

orientation in terms of the kind of situation they're in on this upper-middle-class, traditionally white university campus. Most of the guys who come here — most certainly the guys involved in [the campus rape] situation — were from black communities, from traditional black backgrounds. There's a whole different set of expectations — of cues — that prevail there. You have a situation where oftentimes what she said is not what he heard, and what he understood is not what she meant. And the cultural differences have to be taken into consideration. There should be an orientation for incoming athletes — not just blacks. All athletes are high profile; when they get into difficulties it becomes the university football program or the university basketball program that has a problem, and not just the individual student as it would be otherwise. So when you bring in athletes from a background that is substantially different, when you bring them in for football and you don't give them the training, support, and so forth, that they need to function in the rest of the academic community, then you're in the same situation that my analogy alludes to.

So the fact that people didn't understand or chose not to understand is, to me, indicative of ignorance or some very narrow, almost pathologically stupid ideological commitment. Because whatever problem they're seeking to solve, they're never going to be able to solve it. They're going to be in the same situation as other people were in the sixties who took that kind of [ideologically rigid] approach, who never grew, never expanded their horizons, chose to deny reality, to assault reality, rather than try to understand and adjust to reality; and the end product was that "they were burned out," they fell by the wayside, or they got off into some other kind of freakishness or weirdery. People are walking around here to this day wondering "Gee, what happened to all of the activists who were out there during the sixties? Where are they now?" And you turn around and start going down the list, and you begin to look at who was burned out, coked up, doped out, dropped out, and all the rest. And the reason for it is the very kind of thing you're talking about in terms of the response [to my statement]. The fact that they would pick it out merely means, "Hey, we don't agree with what he says in terms of his analysis. Is there anything in here we can jump on? What I care about them is absolutely nothing. In fact it's indicative, as far as I'm concerned, that I was absolutely on the money. So if they read me as having absolutely no sympathy or respect for narrow-minded, parochial, provincial perspectives, whether it's dealing with [the rape] situation or whether it's dealing with the Campanis issue, they are absolutely correct. I am not an ideologue. I look at a situation and interpret it in terms of realities, and let the pieces fall where they may. If they take exception to that, so be it. I couldn't care less.

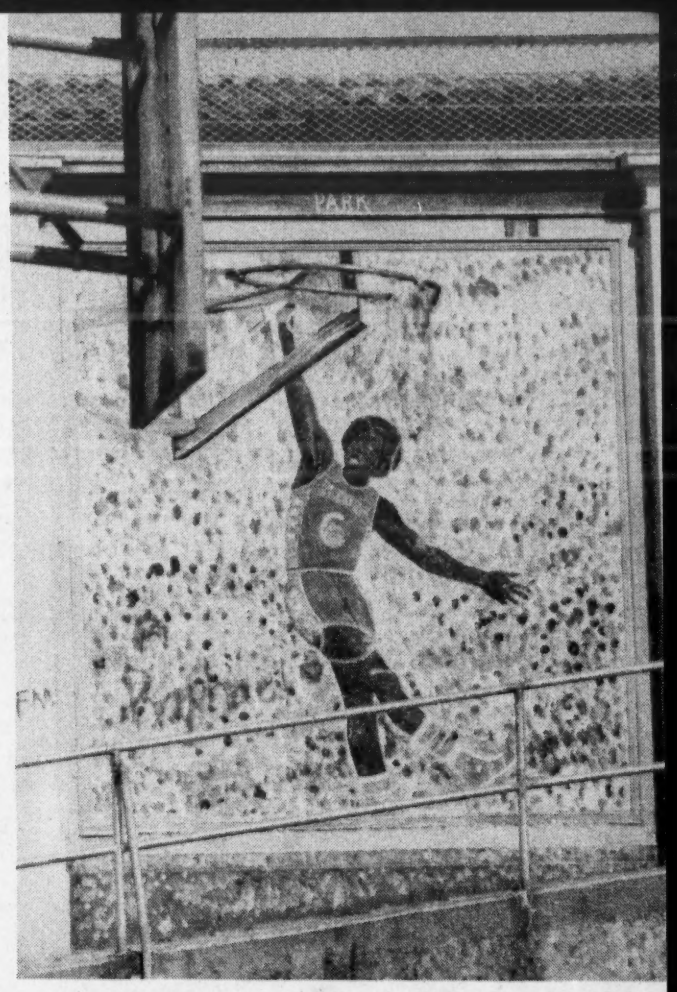
You also suggested that what can be done to prevent this sort of thing — to make the universities live up to their responsibility — is for the victims to sue the universities. Soon afterwards in fact, an attorney for the woman announced she would *sue the university.*

I think that's an intelligent move. That's the only way you're gonna get the kinds of programs you have to have.

She also sued the players.

I think you're looking at a legal consistency. If you're going to sue the university, then you would also need to sue the perpetrators. It'll be hard, I think, given the fact that no evidence was found for the criminal prosecution of the case — and I don't think it was a case of rape. I've stated that over and over again. I don't think any of the seventeen or so cases that have been reported in the press over the last two or three years from

Tim Gonzales



Oregon State to the University of West Virginia, across the country — Minnesota, Notre Dame, and so forth — are cases of rape. They were not prosecuted, and in the one case where they were prosecuted they were acquitted. And out here in the case that was finally settled involving [University of San Francisco basketball star] Quintin Dailey, there was only a fine and some counseling and a letter of apology, because again it wasn't a situation where it was absolutely crystal clear that this was premeditated rape. I think under circumstances where there's no criminal case, it's going to be difficult making a civil case. However, even if the guys honestly read the situation as a freebie — which I think they did — that they simply read it as, "Hey, this is what she's looking for, this is her program," or "This is what we can get away with," I think that the university that recruited these guys and brought 'em here has a responsibility to make sure that there's adequate cultural and social counseling. The university's even failing on the obvious — the academic counseling. The record is horrendous in terms of graduation rates on academic performance by black football players on this campus. They're falling

down on the obvious. Social and cultural counseling they have not even approached. So I think [the alleged victim] is absolutely right in terms of that. I advocated that in terms of the situation across the country, not just the University of California. Because that's the only way it's going to be cleaned up. When [these institutions] understand that it's cheaper to take some of the millions of dollars that these kids are bringing in and spend a few thousand to give them the kinds of counseling that they're going to need in order to function as a legitimate and credible part of this academic community, as opposed to [paying out] millions of dollars in lawsuits when these problems develop and emerge, then they'll do it. But I think that's the *only* way they'll do it. Because they're *just that greedy.*

Talking about university programs, are you for or against the random mandatory drug testing of athletes?

I'm for drug testing. I advocate it at the professional level and at the collegiate level for everyone involved, not just the athletes but the coaches and athletic directors. I want to find out what drugs *they're* using. I think, in fact, that the media people who come in to cover the games should be clean as well. I'm for testing everybody.

I think the justification is that we have invested so much in the athlete in terms of ideals — competitiveness, clean living, good character, physical fitness, mental alertness, discipline, patriotism, religiosity — that when an athlete tumbles, it demoralizes the society. Therefore that additional responsibility comes with the turf. If you accept the adulation, the applause, the rewards of athlete involvement, then you must also accept the accountability. Not because the athlete is any more sacred than a politician or an airline pilot. Look, let's face it. On objective grounds . . .

I want my airline pilots tested too.

. . . I'm interested whether my airline pilot, my surgeon, the dentist who's doing my root canal, the politician who's voting on funds to supply the contras, or the flotilla engaged in a shooting-war with a nation that's committed to martyrdom, I want to find out if they're on anything. My athlete is way down the line in terms of objective reality.

But subjective reality must also be dealt with. We project a hell of a lot onto the athlete. Now whether we should do that is another question. The reality is that we do. These people are role models for millions of people. Two weeks before [college basketball star] Len Bias overdosed, a University of Maryland coed got drunk, cracked through a window on the second floor of a dormitory, fell, and broke her neck. Didn't even make the paper. Another human being — a *white* human being — same campus, drugs involved. But Len Bias is an All-American basketball player, first round [NBA] draft choice. When *he* ODs you get speeches on the floor of the United States Congress and editorials in major newspapers for months afterwards. So I'm for testing, not as a thing of punishment but to find out who's on the drugs so we can get them help. Testing without treatment is nonsense; it's pure harassment, hypocrisy. All this claptrap about individual rights, privacy, and so forth — I'm not certain at all of the propriety of Len Bias's rights to privacy. I'm not certain of the priorities of his civil rights. I'm quite certain that his parents, his brothers and sisters, his school, his coach, the Boston Celtics who drafted him, and this nation would've preferred he'd been tested so that we'd know he had a hell of a problem. And he'd be alive today. This thing going on at Stanford where two white upper-middle-class students are trying to get the NCAA banned from drug testing [a suit recently decided in the students' favor], I find rather curious. White middle- and upper-middle-class students from Stanford are involved in an array of institutional contacts where somebody's going to say, "Hey, so-and-so has a problem." Her sorority, her civic organization, her parents, the church she goes to — *somebody's* going to see she has a problem before she drops all the way to the bottom. What happens when you have a kid who meets the profile of the average black scholarship athlete — from a single-parent family, from the

Tim Gonzales

underclass, a kid whose only real institutional contact is the school? He doesn't go to church, he doesn't belong to a fraternal or civic group, he's not in the Boy Scouts or 4-H. He doesn't belong to the Young Republicans. The only contact he has on an institutional level is the school, and his only contact with the school is through athletics. So nobody finds out Len Bias has a problem until he hits rock bottom. 'Cause all too often white coaches can't read the situation or, like Lefty Gazelle, they think cocaine might even help some athletes in their performance.

In 1968, an Oakland heroin dealer would never have generated the sort of admiration among black underclass youths that we saw demonstrated during Felix Mitchell's funeral last year. Perhaps if a Panther leader had died. . . . What has happened to the ghettos in the interim?

It's indicative of a problem we have in the black community that is just horrendous. I have held for the last six or seven years that the greatest problem confronting the black community in this country is not generated by contradictions between black and white society, but by contradictions within black society itself. Integration provided just enough access for those who had a foot on the ladder to move up and out of the black community; the black middle class has left the black masses behind, physically, politically, and in terms of shared interests. And as a result you have entire densely populated communities of black people who have been dispossessed, disenfranchised, and disavowed, not just by white society but by the black middle class. Into that void, as role models, as community figures, have stepped criminals, degenerates, drug pushers, gang leaders, murderers, thugs, every sort of riff-raff and scum that finds it possible to take advantage of and vulturize the people who remain in the community.

Integration in that sense is one of the heaviest negative trips that has ever been laid on the people. And in fact, black folks don't even want to talk about integration. Latinos are not talking about integration. They're talking about developing their culture. Asians, Chinese are not talking about integration. Jews are not talking about integration. The only ones talking about integration are black people even though blacks did not *ask* for integration. Black people were after *desegregation.* To move out of desegregation is not to move into integration. We can move into the same thing as the Latino community, the Chinese community, the Jewish community, the Vietnamese community — which is democratic pluralism. No people in this society has ever advanced without their institutions intact, but as a condition of black advancement under the integrationist philosophy, we have not only had to abandon our community in terms of political involvement and concerns and interest, we've had to *destroy* our institutions.

Take black films. At one time in the twenties you had a burgeoning black industry. When black actors couldn't get work, they created their own film industry. But with integration, you had black men and women, who had played businessmen and police chiefs and mayors and so forth in black films, all of a sudden going into the white industry. Those same black actors, the most identifiable — the Sidney Poitiers, the Billy Dee Williams of their day — now they're playing butlers, maids, chauffeurs, and valets. Rochester and Amos and Andy. And the black film industry collapsed.

So when we look at these problems, at the Felix Mitchell situation, we have to understand it not from some perverted perspective that says, "Jeez, aren't these black people degenerate?" We have to understand it in the context of the vacuum that has been filled [by drug dealers like Mitchell] in the wake of the bankruptcy of black leadership — race brokers and even race pimps — with its own class-locked agendas and programs.

We are, in fact, lying about the nature of the problem. There's really nothing white folks can do about illegitimacy in the black community, the fact that fifty to sixty percent of [black] babies have been born out of wedlock over the last ten years, eighty percent to black women under 21. White society can't deal with its own problems of illegitimacy. That's why we've had 1.7 million abortions in this country since making it legal.

There's also nothing really that white society can do about the drug problem. That's a black problem. When we stop buying the drugs, the drugs cannot be marketed in our communities. But our leaders are much more inclined to talk about white responsibility than black accountability. There's nothing the white society can do about the problem of a lack of discipline and a lack of competence and commitment in the black educational system. When I see SAT scores and hear cries about affirmative action bringing black students onto this campus, and I look around and the overwhelming majority of these students 32 years after *Brown* v. *the Board of Education* are coming from all-black or predominantly black schools, with a majority or all black teachers, black principals, black administrators, and these kids are coming out unprepared to compete effectively in the schools they aspire to, and our response is "Let us in anyway; reduce the challenges to our level of incompetence," then I know something is wrong.

We have to become serious in telling the truth and helping to galvanize those communities, to generate the will and the strategies and the programs to raise those communities, so we can meet the challenges in the 1990s and the 21st century. And if we don't we are wasting our time whining about what white people didn't do. *White people* are in a life-and-death struggle of their own. ■

Compassion 101

Anne Herbert, world-unfamous author and most-popular contributor to this magazine, says that it only took her twelve years to figure out how to get a book published. She does what the hi-tech forecasters call Publishing-On-Demand. When you order a copy she xeroxes the 325-page bound manuscript and sends it to you.

The book is a terrific epistle. Some of it has appeared in this magazine before, but when you read it again it doesn't seem a bit old, because she is writing about the secret thoughts we all have that don't go away. Most of it has never been published before — uncharted honesty. Anne writes stuff that sticks in your mind and finds its way to your lips so that you repeat it to others. She says it joggles your brain cells and heart cells together and she's right.

I gather from the format that it's a dialog in print, and that what you get is a typewritten 325-page passionate letter mailed from Anne to you, and that it would be okay if you wrote a passionate 325-page letter in return, which this book makes you want to do. —*Kevin Kelly*

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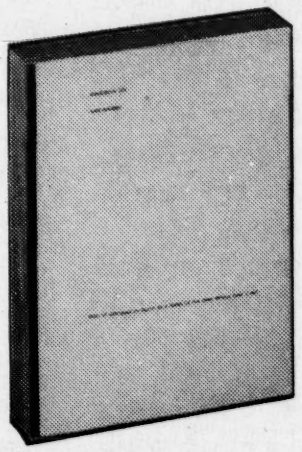

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Humans share an odd kinship system. We all think there's someone we're not related to.

•

Fred has a little room off to the side of the counter with wood scraps and tools and nails where kids are free to make things that don't work or have names and he'll help them make things that do work when they're in the stage of wanting that. He made a banjo with different frets so it could play different modalities — whole other note systems, so you hear note combinations like in Gregorian chants delivered in sounds like in the Grand Old Opry. Fred helps people see what a whole room would look like in that color, and sells old tools from estate sales to people who use them as tools. In the middle of talking to Fred about anything, such as putty or chisels, some people remember their dreams — the ones from early that morning or early that life. Fred seems to like being where he is. Fred fits and is himself at the same time.

I like Fred. This book isn't about Fred because I've said everything I know about Fred right here, but I'd like this book to be like Fred.

•

— "Yes, but what would Gandhi have done in Nazi Germany."

— "Something that worked. In other words, he wouldn't have left all the initiative and imagination to Hitler."

•

Did you ever notice that when we join a group that's trying to reduce the pain in the world we often act like we're joining a mood? We act like there is only one correct mood to help the world in. People in some religious groups seem to smile a big smile all the time. People in other religious groups forever have a knowing half smile and all have exactly the same twinkle in their eyes. Warm concern is popular among peace groups right now; you can go to rooms chock-full of people being warmly concerned. Some political groups are very serious, furrowed brow groups. People in them look like the weight of the world's pain is resting on the top of their spines in the form of a ton of hot lead bricks. People in other political groups go for strident anger all the time, of the kind that will eventually give you calluses on your vocal chords.

All of these folks are on to something, all of them are living out a truth, but I look at the people in the groups and I wonder, "Where do you put your other moods?" I mean, they've got to have other moods. This is the kind of world and we are the kind of animal so that when we and the world interact all that stuff happens to each of us — big smiles, furrowed brows, anger, warm concern — giggles, even. I haven't yet come across a group that is ideologically serious about giggles. It would be a relief, for about five minutes.

•

What's your favorite thing about no clothes on?

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I think perhaps we are a minor species and that the whole thing would go more smoothly if we could relax into being minor. We are as humans and might as well get humble at it.

•

People on the street ask me for change and sometimes I think they're asking me for change. Buddy, can you spare some transformation? They might be ready for big change, as they don't have a lot to lose, nowhere to go but better. But me, for me the system kind of works. I sort of fit into a reality where people beg on the streets in my country, where my taxes support torture in other countries, where a blonde educated citizen of the United States such as myself can pretty much do whatever I can get it together to do. I am ready to change?

•

Most non-Africans are too untrained to fully hear all the rhythms in African music. Even sort of hearing them is amazing — so many things being together without being the same. Hearing those rhythms frees me up to notice that people like me, as we learn new ways of knowing the world, haven't yet learned to jam with each other like African drummers jam, each bringing his own rhythm, playing around with the other drummers, nudging the other guys a little and being nudged back as we each keep our own rhythm and the layers of sound build and build and build.

§

Me, I learn something new and I go, "Oh, that means boom, boom, boom." I get a big drum and march into the room and say, "OK, guys, the answer is BOOM, BOOM, BOOM." Makes the people who know the answer is "da, da, DUM!" play louder. People who have noticed that life has many rhythms leave the room so they can hear. As they leave, I say, "They don't care about the truth."

If I find a rhythm that sort of works for me, I want to keep playing it forever. If I find a way to think and live that includes something important to me and leaves out things I'm scared to deal with, I increase the volume of that way of living in hopes it will drown out everything else. I'm scared to know anything else for fear my life wouldn't work for me anymore.

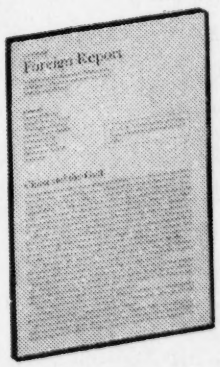
I read a piece I liked that said, "Very little will happen unless there are loose materials around." It said in your house it's good to have rooms where everything can be moved around, furniture and all. With loose things, you can find better ways to live even though the old ways weren't so bad. One way to make things different than they are now is not to decide on the difference at the outset, but to make space with loose things. You can solve problems you hadn't noticed you had and make mistakes and laugh.

Foreign Report

A weekly bulletin emanating from the same superior newsgathering network that publishes ***The Economist*** *weekly newsmagazine, this blue eight-page leaflet is consistently in advance of what you read in your daily newspaper, often by weeks and sometimes by months. Once you become addicted to it your daily news fix takes on a different aspect, one of confirming events of which you were forewarned.* ***The Economist****'s organization has a vast network of high-level sources that undoubtedly owes a great deal to Great Britain's long generations as a global empire.* ***Foreign Report*** *is required reading in ministries and boardrooms around the world. It is supplied on the understanding that its articles are confidential and may not be reproduced.*

A recent long visit to California and New England [from Switzerland] reconfirmed for me how narrow a window on the world is provided by US media. Newspaper and television coverage is wretched. Americans are really miserably informed about what's going on in the world.

—Michele Burdet



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Waterstone's Guide to Books

Mailorder book heaven. This 830-page (but light in the hand) catalog not only lists thirty thousand titles, it provides enough intelligent advice on sundry topics and authors that it actually makes careful book shopping by mail possible. The tome reeks of the British love of books and good writing. Even with the current exchange rates, British book prices are customarily so low that the prices look good in dollars, and British book publishers keep great titles in print long after American houses give up (our inventory tax punishes backlists). Waterstone's is particularly handy for finding long-sought books of authors you love — Borges, J. G. Ballard, Raymond Chandler, Jim Thompson, Wilbur Smith, Paul Theroux, Gore Vidal, just to pick some names from fiction country.

—Stewart Brand

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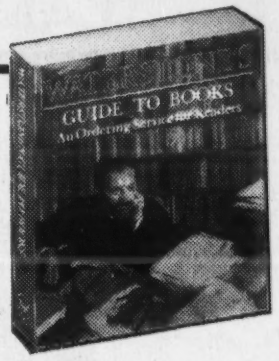

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Rumblings in Tadzhikistan
The KGB chief in Tadzhikistan, Vladimir Petkel, has revealed that "anti-government forces" in Afghanistan have crossed the border and tried to carry on the Afghan war there. He added that "tens" of Soviet Tadzhiks had been arrested while trying to enter Afghanistan, presumably to join the rebels. Petkel, who made his comments in a little-noticed article in the monthly magazine *Tadzhikistan Kommunist,* also said that local Muslims had tried to subvert the communist party's control of the region.

Petkel's article, which is an example of *glasnost* (openness), also said that some Soviet Tadzhiks had been avoiding military service and preferred to go to prison rather than serve in Afghanistan. It added that some Tadzhiks who did serve in Afghanistan had made contact with Afghan Tadzhik rebels.

Petkel also revealed that there had been "dozens" of trials in 1986 and 1987 of Islamic mullahs whom he accused of fanning religious feelings and calling for a "holy war" against the Soviet system. Some had even managed to infiltrate the party and the court system to "further their hostile designs", he added. He confirmed that the "illegal" spreading of Islam in Tadzhikistan was a reaction to the Soviet Union's involvement in Afghanistan.

The KGB chief's revelations underline the view that the Soviet presence in Afghanistan is undermining the Soviet Union's security and not enhancing it.
[January 14, 1988]

•

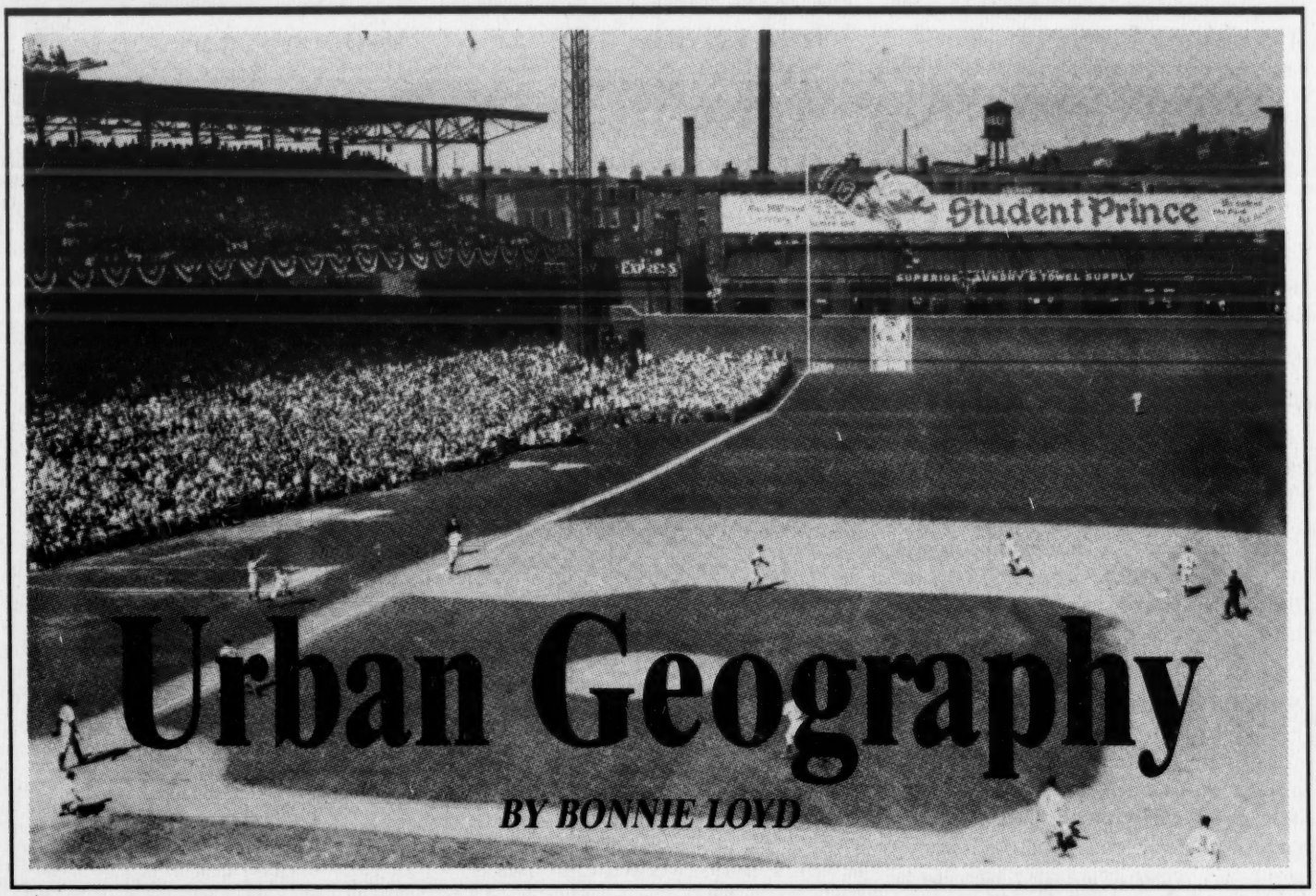
Executions in Aden
After being found guilty of treason, five prominent South Yemeni politicians were executed by firing squad in late December at Aden's al-Mansoura jail. . . .

The treason trials took nearly a year. [Ex-president Ali Nasser Mohammed] was sentenced to death in absentia. Pleas for clemency came from the Soviet Union, Libya, Kuwait and the Palestine Liberation Organization, which set up a base in South Yemen after it was expelled by Israel from Lebanon. The Russians argued that executions would increase bitterness between the ruling faction of the South Yemeni communists and the ex-president's faction. (Both swear loyalty to Moscow.)

(Nasser Mohammed was ousted after a shoot-out at a Politburo meeting in 1986 which led to street fighting in which about 4,000 people died. The former president is preparing a comeback with a 10,000-man army based at three camps in North Yemen.)

The Soviet Union, which has access to Aden's harbour and airport and provides advisers and aid, wants the country to settle down peacefully. During the 1986 fighting, the Soviet embassy was damaged by guns fired by the faction which ousted President Ali Nasser Mohammed. The Russians do not want to repeat that experience. . . .

In North Yemen, President Ali Abdullah Saleh ordered 30 days of mourning as a sign of protest against the executions. There may be more trouble between the two Yemens. Oil has been discovered in a poorly marked border area claimed by both North and South Yemen. The new discovery is by Soviet oilmen based in South Yemen but working close to oilfields operated by the American Hunt company in North Yemen. Both countries have moved troops near the area. The Russians, who sell arms to both North and South Yemen and want to exploit the oil, are trying to mediate. [January 28, 1988]



The New York Yankees

Urban Geography

BY BONNIE LOYD

I. Ball Parks

MY friend Blair pointed out the other day that baseball is the only sport in which fans develop such great affection for the parks. Baseball fans love to talk about ball parks almost as much as they like to talk about games. Everyone has a favorite — Dodger Stadium, Wrigley Field — and they discuss statistics like the height of the left-field wall or the length of the power alleys.

The ball park isn't just a neutral setting for nine innings of play, it's part of the game. Managers work out strategies to suit the field. At Fenway, they might load the lineup with right-handed hitters for the lopsided outfield and keep left-handed pitchers on the bench.

Baseball is odd in that way, because for most other sports the field of combat is standardized. Sure, aficionados may fuss over variations in playing surfaces, but the basic dimensions — the length of the court, the height of the net — they're all specified. But in baseball, especially in the grand, old parks, each field has its own shape and personality.

Most of the classic baseball parks were built between 1902 and 1923. They were shoehorned into crowded cities, so the fields were shaped by the surrounding street plans. In Philadelphia, for instance, the founder, William Penn, laid out an orderly grid for the streets, so decades later when Shibe Park was built, it turned out square. Fenway Park in Boston has a cranky, meandering outfield wall, dictated by the maze of streets that presses up against it.

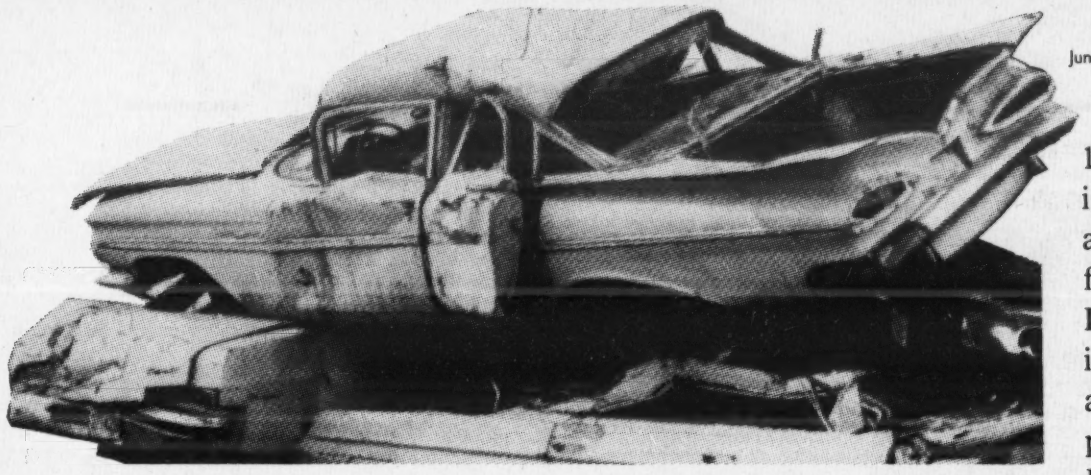
But it wasn't only real estate that fashioned the famous baseball fields. Brian Neilson, who wrote about the classic ball parks in *Landscape* magazine, says: "Each playing field had its peculiar geometry and dimensions. . . . Yankee Stadium's asymmetrical field was a product not only of its odd-shaped plot, but also of the decision to tailor it to the strengths of one player. Babe Ruth was the first of a succession of left-handed Yankee batters to press a territorial claim on the near right-field seats. "The House That Ruth Built" objectified the heroic age of the sport in which one personality might alter the dimensions of the game. Other clubs altered the field to accommodate particular players or strategies. The owners of the Pittsburgh Pirates pulled in the left-field fence to create a "home run garden" for two right-handed sluggers. Unlike football fields, baseball fields of the era obeyed no abstract, Euclidean imperatives."*

Well, Brian Neilson might call it geometry, but it seems to me, baseball parks are a wonderful place to study urban *geography.*

Bonnie Loyd, longtime editor of Landscape *magazine (P. O. Box 7107, Berkeley, CA 94707), has been doing geography since the age of seventeen. She's taught geography at Stanford, San Francisco State University, and the Aegean Women's Institute in Greece. These narratives, like the previous one ("Ode to the Mundane,"* WER *#58), are from her series on public radio (San Francisco's KQED, 88.5 FM).*

—Corinne Cullen Hawkins

*"Dialogue with the City: The Evolution of Baseball Parks," *Landscape* #29, no. 1, 1986, pp. 39-47.



II. Junkyards

What's new at the junkyard? You know the scene: battered hulks of cars stacked up in heaps, teenage boys and do-it-yourself mechanics rooting around for parts to fix up their own cars. When's the last time you actually visited a junkyard? The closest I usually get to one is on television or in the movies. They're great locations for shootouts: the bad guys are ducking behind gutted Buicks, while ominously in the background the big crusher just keeps squashing BMWs.

I've done some snooping around, and I feel a bit disillusioned, because Hollywood has even managed to make the junkyard a cliche.

First, the name. Junkyard. No, no, no. People in the business refer to this as "auto wrecking" or "auto dismantling," maybe "automobile salvage," but my favorite is "after-market body parts."

Second, the look of the junkyard. I've been driving around San Francisco near Third and Evans and in the East Bay near San Pablo Avenue, and I discovered that junkyards are quite discreet. City zoning departments require that they have a fence of solid metal panels, painted a neutral color, a few trees in front, and a subtle sign. Some dismantlers don't even have an outdoor yard; everything is inside a warehouse. You could easily drive by without realizing you had passed a junkyard.

Then, there are the economics of the business. In 1983 there were 11,200 auto wrecking companies in the U.S. with 80,000 employees and $4 billion in annual sales, figures from Arthur D. Little, Inc. But business has been tough in the past two or three years and at least ten percent of these companies have gone out of business. It turns out that many operators are being undercut by importers who sell new fenders, grilles, and other parts made in Taiwan, Mexico, Italy, and other countries for less than junkyards charge for second-hand parts. Also, prices for scrap metal have dropped, and many new automobiles are longer-lasting and harder for amateurs to fix.

You may have noticed a lot of old cars rusting on the city streets. That's the effect of the hard times in the junkyard business.

What about those big crushing machines that star in the movies? The ones that turn a whole Chevy into a mere wafer of metal? One guy in the Bay Area does own a portable loader/crusher, but I was disappointed to learn that nobody here actually has one in their yard. So much for Hollywood. ■

WHAT FARMERS DO WITH OLD BICYCLES

This is Richard Wiswall of Cate Farm in Plainfield, Vermont. He raises organic vegetables on 6½ acres of bottom-land next to the Winooski River. He has a pair of tractors for field preparation, transplanting and cultivating. For hand labor tasks he welded up this contraption out of two old bicycles. It straddles his wide rows and eliminates stooping and backaches. It has backpacker foam to lie on and a strap to support the forehead. The T-shaped lever at the back works like a leg machine at a gym. Raising it cranks the pedal via rope and pulleys. When that's not enough, a spin of the front wheels moves it forward in soft dirt. Richard also has a novel (to me) trick for keeping deer out of his apples: he gets good results by slicing bars of Dial soap into chunks and hanging them from his trees.

—Richard Nilsen

R. H. Nilsen

A New Theory of Urban Design

This new little book by the author of ***A Pattern Language*** *is about urban design in highly specific terms, but in ways that translate neatly into other complex human endeavors. Alexander focuses on how such things as cities best develop* as a whole, *and his technique encourages* accelerated process — *doing in ten years the kind of organic growth that may have taken a Renaissance city 100-200 years. Alexander likes to distill out poetically concise rules. The key one in this book is:* "Every increment of construction must be made in such a way as to heal the city." *One is halfway through the book, charmed and somewhat persuaded, before it becomes apparent that this is a form of planning devoid of any plans whatever. It is a system which learns as it goes, getting by efficiently and wholesomely on general rules instead of detailed schemes.* —*Stewart Brand*

•

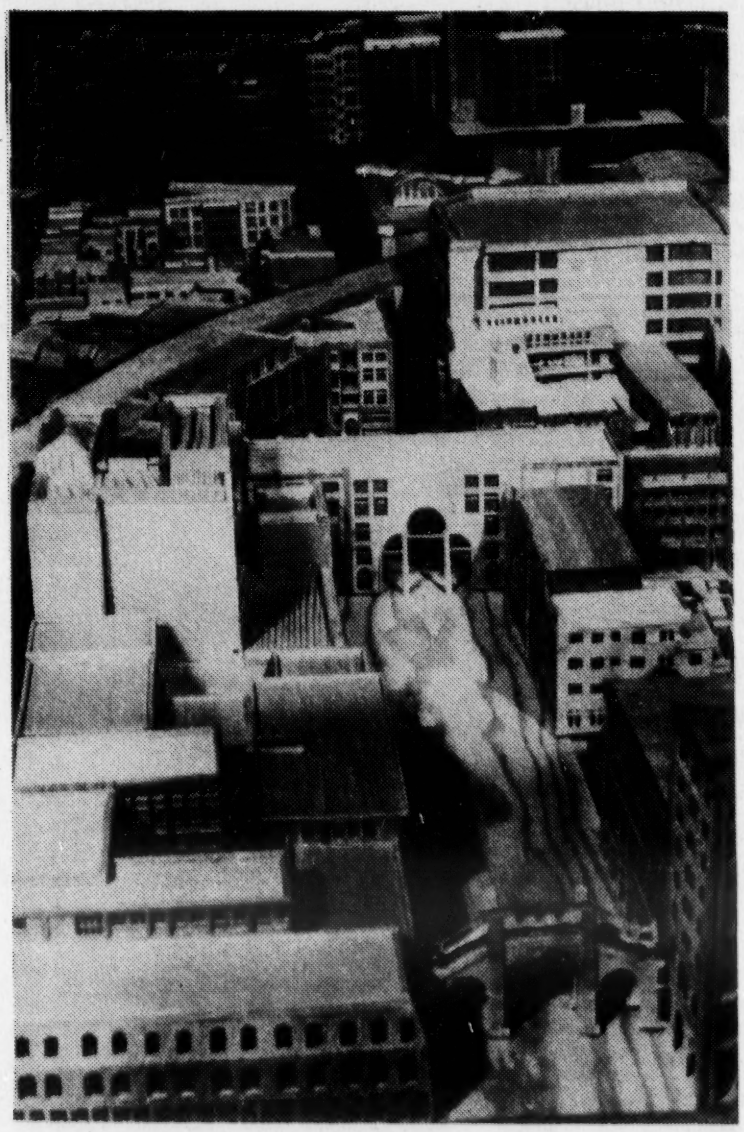
In each of these growing wholes, there are certain fundamental and essential features:

First, the whole grows piecemeal, bit by bit.

Second, the whole is unpredictable. When it starts coming into being, it is not yet clear how it will continue, or where it will end, because only the interaction of the growth, with the whole's own laws, can suggest its continuation and its end.

Third, the whole is coherent. It is truly whole, not fragmented, and its parts are also whole, related like the parts of a dream to one another, in surprising and complex ways.

Fourth, the whole is full of feeling, always. This happens because the wholeness itself touches us, reaches the deepest levels in us, has the power to move us, to bring us to tears, to make us happy.



A New Theory of Urban Design
Christopher Alexander
1987; 251 pp.
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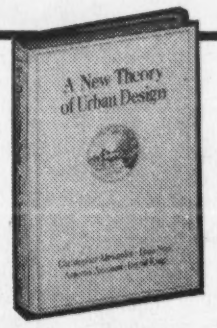
Fair Lawn, NJ 07410
201/796-8000



or Whole Earth Access

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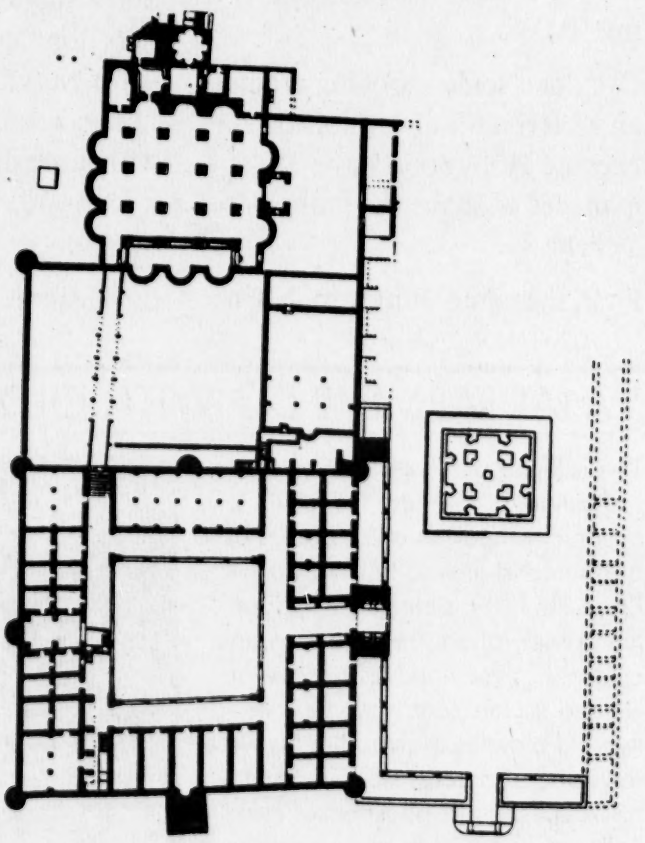
Rule I: Piecemeal Growth
This rule establishes the piecemeal character of growth as a necessary precondition of wholeness. It does it by defining the small *size* of the increments. The rule is necessary simply because wholeness is too complicated to be built up in large lumps. The grain of development must be small enough, so that there is room, and time, for wholeness to develop.

•

The principle that roads are built incrementally, to serve buildings, and fitted to the buildings after the buildings are conceived, not before, is of *immense* importance.

We insisted on this rule during the experiment, simply because present-day urban development is ruined, most often, by the hierarchy of decisions in which the road network comes first, buildings come second, and pedestrian space comes third.

The correct sequence, as we are trying to show in this system of rules, is just the opposite: pedestrian space *first,* buildings second, and roads *third.*



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The main thing which happens, then, in the process of centering, is that each new center endeavors to introduce symmetry into this field . . . *but always fails.*

This is because a naive insertion of a symmetrical object is always dead, because it is unrelated to the complex assymetries around it. A thing which struggles to be related to the whole, will always be almost symmetrical, but not quite . . . *not* as a result of an *intention* to be like this, but because this is the *inevitable* outcome of an effort to be *true.*

Model of proposed urban development in San Francisco designed by Christopher Alexander's students according to his incremental process.

Landscaping for Wildlife

The Minnesota Department of Natural Resources has produced an outstanding how-to wildlife-landscaping book. It also covers Wisconsin, Iowa, Michigan, and northern Illinois, Indiana and Ohio. People who live elsewhere should consider buying the book anyway. It's cheap. There are enough glorious color animal pictures to make it a great bedtime book for small children. And there is also a mountain of detail made comprehensible and accessible, plus directions and plans for back yards, farmsteads or whole woodlands. This book is good enough to be used even as a lever — show it to the Natural Resources department where you live and then ask politely why your state doesn't have a book like this.

—Richard Nilsen

Landscaping for Wildlife
Carrol L. Henderson
1987; 144 pp.
$6.95
($8.45 postpaid) from:
Minnesota
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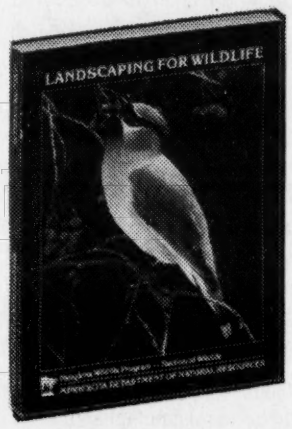

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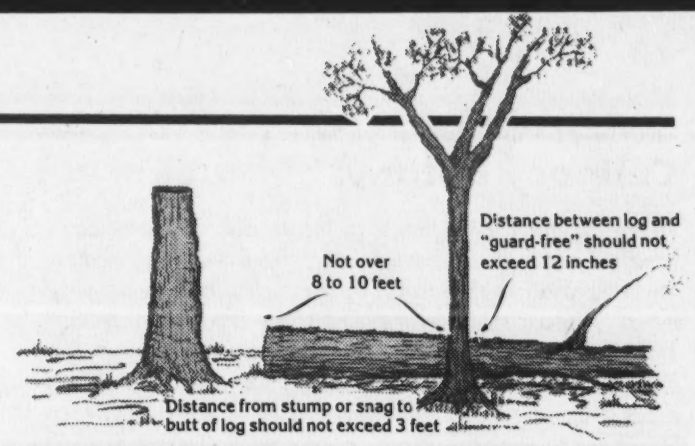
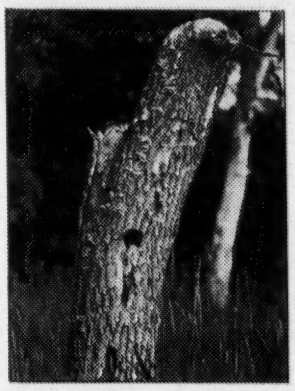
One of the greatest opportunities that exists for homeowners to help wildlife is within the boundaries of their own yards! In most yards that have been landscaped in the past, wildlife benefits were accidental or incidental. Only the most adaptable species like robins, house sparrows and European starlings thrived in such habitats. More than 100 wildlife species, however, may use a well-planned backyard habitat at one time or another.

Container garden for butterflies, bees, moths and hummingbirds for use on a balcony, patio or deck in full sun to partial shade.



To make a drumming log for Ruffed Grouse, a tree can be felled or moved into a position as shown above. The drumming site will be either within a foot or two of the butt end, or within 18 inches of the "guard tree". Also, several logs 6 to 8 feet long can be piled against a snag or tree to make a drumming log. In any event the bird should be 10 to 12 inches above the surrounding terrain when standing on his "log".

Snags provide woodpeckers a place to raise their young.



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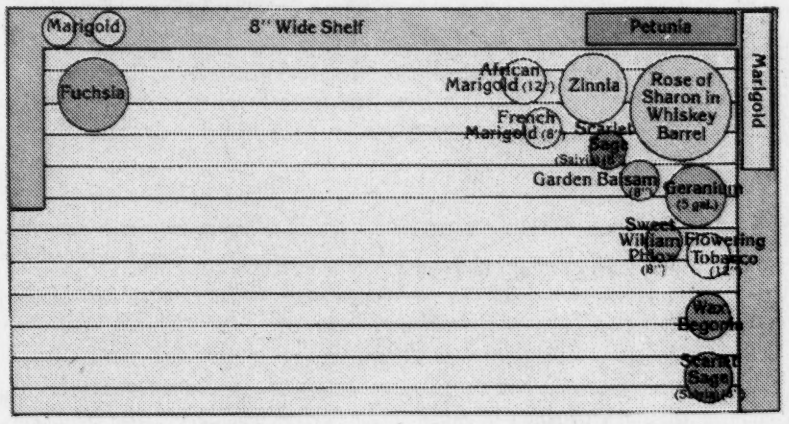
In extreme circumstances where snags are lacking, you can create snags in a woodlot by girdling several *diseased* or *deformed* trees. The best trees for creation of snags are oak, sugar maple, basswood, ash and elm. Girdling involves cutting a ring around the trunk through the bark and well into the sapwood so that the cambium layer between the bark and wood is completely severed.



Fungi Perfecti

The Perfect Fungi people have everything you need to grow mushrooms. From Petri dishes and mason jars to industrial-strength autoclaves and modular refrigeration units, their catalog provides a hundred clever solutions to the problems of mushroom cultivation.

The hobbyist may purchase ready-to-grow edible mushroom kits or foray baskets to gather wild specimens. Serious fungiphiles will find pressure cookers, laminar flow hoods, electrostatic filters, and sterile-room supplies — reflecting the mycologist's constant battle with contamination. Special scientific gizmos for sterile inoculation or liquid culture propagation are available. These products have many applications to greenhouse environments or plant tissue culture in addition to growing mushrooms.

They also provide exotic mushroom starter cultures, including Ling Chih, the magic Chinese medicinal mushroom, and two species of Morels. Sorry, no Psilocybe *or* Gymnopilus *species.*

Mushroom cultivation is in the hands of the people. I wish I had this catalog 15 years ago when I was growing mushrooms in my basement. It would have given me a lot of good ideas. *—Dean Abel*

Fungi Perfecti
Catalog
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Fungi Perfecti
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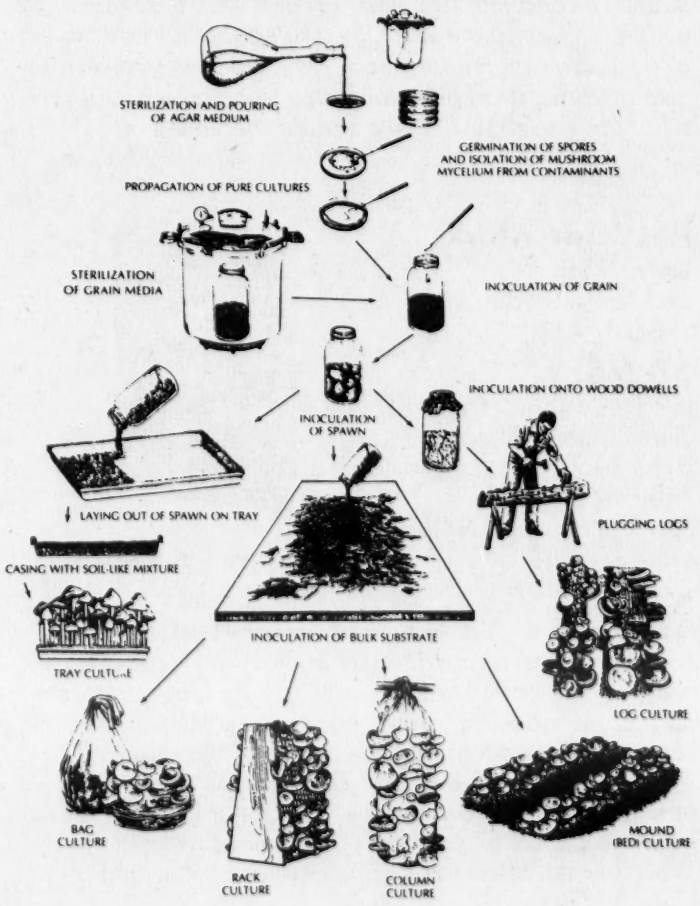
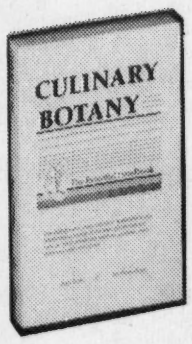
OVERVIEW OF TECHNIQUES FOR THE CULTIVATION OF MUSHROOMS



Culinary Botany

There are new ingredients in the good old American melting pot — both people and the foods they eat. To try a new vegetable in an ethnic restaurant is easy, but if you've ever stood staring at some totally unfamiliar THING in the produce department and muttered "but how do I eat that?" this book has the answer. It finely dices 175 new fruits and vegetables — what they look like, how to prepare them, and even their names in 11 different languages. Extensive nutritional information is included, of interest to dieters and those who love numbers more than food. Species diversity is a good thing, and one proof is in the eating. —*Richard Nilsen*



Culinary Botany
Brant Rogers
and Bev Powers-Rogers
1988; 176 pp.
$11.25
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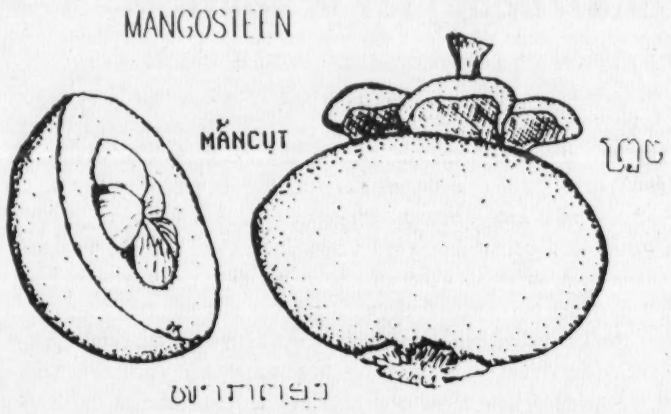
Mangosteen and Mammey
Mangosteen — *Garcinia mangostana*
Mammey (Sp.), South American Apricot,
Mammee Apple — *Mammea americana*
Guttiferae, Garcinia Family

Mangosteen is considered the finest tropical fruit by many. If it weren't for its limited availability, it would be much more popular (National Academy of Sciences, 1975). It is a native of Southeast Asia, where it has remained a common back yard tree. Because of cultural difficulties and slow growth, mangosteen orchards are not common.



Mammey is a tropical fruit from Latin America that has been grown experimentally in Florida for a number of years. As commercial varieties become more plentiful it will be more common locally.

DESCRIPTION: The beautiful mangosteen is about the size of a plum, quite round and flattened on both ends. The thick, durable rind is a beautiful deep red. Inside are a number of white segments, arranged like those of a mandarin orange, which are removed very easily from the rind. The pulp is soft, very sweet and melting, and contains few seeds. The flavor is unlike any other fruit and probably one of the most delicious in existence, though a few find mangosteen too sweet to enjoy by itself.

Mammey is usually the size of an orange with a rough, rather leathery brown rind. Within is a yellowish, aromatic, sweet and sour pulp containing a few large seeds. The flavor is often similar to apricot though it varies.

USES: Mangosteen is most often used fresh and alone. Mammey is used fresh and cooked.

Pesticide Alert

This book, by two scientists from the Natural Resources Defense Council, describes the five pesticides most commonly found as residues on each of 26 common fruits and vegetables in America. "We were originally going to list the ten most common pesticide residues for each one, but people can only read the word 'cancer' so many times," said co-author Karen Snyder. Instead of contributing to consumer hopelessness and fear, the book urges action to change the woefully inadequate current system of pesticide regulations, monitoring and enforcement. It also provides strategies to help consumers — and that's all of us — to shop smarter and eat healthier.
—*Richard Nilsen*

Pesticide Alert
Lawrie Mott
and Karen Snyder
1987; 179 pp.
$6.95
($9.95 postpaid) from:
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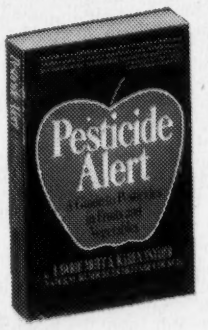

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Daminozide, or Alar, is a plant growth regulator reportedly applied to approximately 38% of the fresh apples grown in the United States. . . . When daminozide-treated apples are made into apple juice or apple sauce, the breakdown product UDMH is formed. Five separate studies completed between 1973 and 1984 have shown daminozide and UDMH to be carcinogens. The EPA proposed to cancel all food uses of daminozide in the fall of 1985, but retracted this position in early 1986 and allowed use to continue essentially without restriction. . . . Daminozide and UDMH were detected in 87% and 71%, respectively, of the samples of fresh apples, apple juice and sauce, peanuts and peanut butter, cherry filling and Concord grape juice that were analyzed. . . . The EPA plans to review daminozide again in 1989.

•

Imports of apples to the United States increased by 90 percent from 1982 to 1986. In fact, nearly 300 million pounds of apples were imported in 1986. Apples are imported from as many as 40 different countries, yet only 12% of the apples analyzed by FDA from 1982 to 1986 were imported. Further, over half of these apple samples had residues.

•

Another reason that EPA's tolerances may permit unsafe pesticide residues in food is that EPA relies on estimates of average food consumption in calculating acceptable levels of exposure. For example, when setting a tolerance, EPA estimates that the average American eats no more than 7.5 ounces *per year* of avocado, artichokes, zucchini, melons, nectarines, eggplant, mushrooms, or tangerines. These numbers were developed by taking the total United States annual production of the commodity in the late 1960s and dividing this figure by the nation's population. These averages do not account for special dietary patterns of the population. Further, these figures are unrealistic given the substantially increased consumption of fresh fruits and vegetables in the last twenty years.

•

A recent government report disclosed that FDA's enforcement is weak because FDA laboratories on average took 28 calendar days to complete sample analysis and processing. In other words, in the time FDA took to complete its laboratory work, most food would have been sold and consumed.

Phelan's

''Phelan's'' is a beautiful catalog of great riding gear. They don't offer one (or hundreds) of everything, and they don't direct themselves to veterinary items or show apparel; but they do offer indispensable, carefully designed and as carefully made items for the competitive (and not-yet-competitive and no-intention-of-being-competitive) equestrian sportsperson. I have acquired only a pair of denim riding pants from them, while I save my pennies for the other have-to-haves, but I am unwilling to approach a horse wearing anything else anymore. They are more durable, more washable, more comfortable, better-looking, than my initial purchase of nylon breeches from my local tack shop. AND they have pockets — one of the great ideas of Western man. Maybe THE great idea of Western man. The other items in the catalog are of equal quality. *—Kate Gowen*

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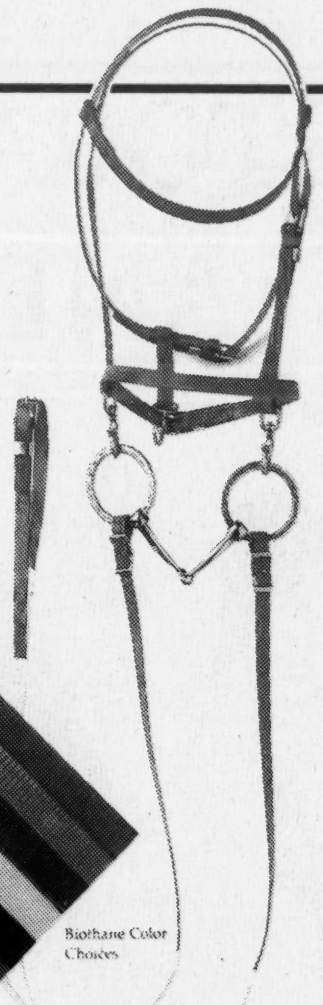

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Tough Tack
Accepted first at the racing tracks and then by the Amish, biothane tack is acquiring a formidable reputation. Its advantages include: snazzy colors, extremely low maintenance, soft feel, lightweight, great durability, flexibility at low temperatures, and no marked chafing or irritation for the horse. The material is nylon webbing coated with polyurethane with solid brass hardware. We carry biothane bridles, reins, breast collars, and stirrup leathers in many colors: turquoise, pink, royal blue, yellow or black.
Combination Halter/ Headstall . . . **$55**
Reins . . . **$45**

•
Twill Riding Skirt
Customers kept asking if we sold riding skirts, so we decided it was about time someone made them again. We looked everywhere for an authentic design and finally found the right one in an historic Hollywood costume warehouse. Our finely-stitched skirt has two distinctly different looks depending on which way you button the front flap. Buttoned to one side, it has a conventional skirt-like appearance. Buttoning the flap the other way turns it into a pair of culottes and allows you to ride comfortably astride, the skirt draping beautifully in the saddle. The all-cotton twill is sturdy yet soft, cool for summer riding, and machine washable. The partially elasticized waistband is comfortable and gives the waist a fitted look. There are proper pants-style pockets on each side. In women's sizes S, M, & L. To order, send waist and hip measurements. *Riding Skirt #450 . . .* **$130**

Best Care Catalog

Omaha Vaccine Company has the most complete inventory and best prices I know of for mail order animal supplies. Their ''Best Care'' catalog has dog & cat supplies: vaccines, medicines, food supplements, grooming supplies, chew toys, beds, collars & leads, dishes, everything needed except food!

They also have similar catalogs with supplies for horses, cattle, and hogs. *—Susan Mudgett*

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Silva Economical Fly Trap
Without pesticides, non-toxic

A European best-seller. The Silva Fly Trap was developed by a large Swedish dairy where they could not use chemicals. A US horse breeder who tested the new paper said: "We think the Silva Fly Traps are great. With them we no longer have to fog the barns at night. "A light "fly-luring" surface attracts and traps insects. When hung, the fly traps remain effective for up to six weeks. Unopened traps remain good for years.

The sheets can be attached to a 23-inch straight holder that keeps the trap flat, or to a 7-inch round holder that makes a sheet into a round trap. Each sheet is 23 inches by 13 inches with a capacity to trap and hold about 4,000 flies.

#15148 Silva Fly Trap package.....$11.95
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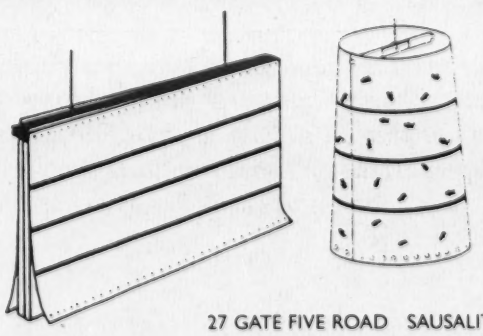


Lick It
Dog Waterer

Provide your dog with an unlimited supply of fresh, clean water. This self-service waterer screws onto a faucet to save you time and worry. The dog simply licks or nudges the lever control to make the water flow. The unit shuts off automatically after use. Training instructions included. By Lixit

15283 Lixit Waterer.....$5.95

THE RESTORATION OF AN ISLAND ECOLOGY

BY DAVID WINGATE

The true story of the man who planted eight thousand trees and resurrected an "extinct" bird.

IN 1951, THE WORLD SCIENTIFIC COMMUNITY was stunned by the announcement that the cahow — a bird whose name had become synonymous with extinction because it was thought to have become extinct in the 1600s, around the same time as the dodo — had just been rediscovered. The cahow is a member of the petrel family, in the order which contains albatrosses and shearwaters. It ranges widely in the North Atlantic to the western edge of the Gulf Stream, where it feeds on squid and fish, but it breeds only on the 20 square miles of oceanic islands of Bermuda, located at 32° N and 64° W in the western reaches of the Sargasso Sea, 580 miles east of Cape Hatteras.

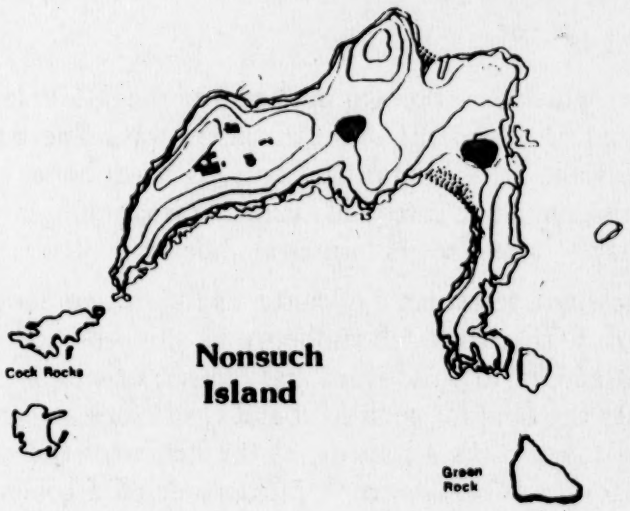
As the conservation program launched to save this extraordinary bird from extinction has gradually succeeded against all odds, expanding into the restoration of an entire terrestrial ecosystem on 15-acre Nonsuch Island, the name "cahow" has ultimately attained wider significance as a symbol of hope for conservationists around the world.

David Wingate has spent his adult life nursing one species of pelagic seabird back from the edge of extinction. He set out to save a bird — the cahow — but in the process he has restored the ecosystem of an entire island. With nature it is impossible to do just one thing. He is also a prodigious tree planter, and his success gives hope to those who see restoration as an important aspect of environmentalism. Increasingly, we all face the task of discovering how to fix what we have already mucked up. Like many a beautiful place, Bermuda has become a victim of its own success. Of 60,000 people, Wingate is its sole Conservation Officer.

—Richard Nilsen

(Opposite) A cahow (Bermuda petrel) fledgling exercising its wings. Cahows spend most of their lives at sea. Loss of breeding habitat has nearly caused their extinction. Their large wingspan lets them soar far and fast — up to speeds of 40 MPH.

(Right and below) Nonsuch Island, Bermuda.



The history of man on Bermuda provides a stark contrast to the story of the cahow. Settled as a British colony on the strategic sea lanes between the old and new world, the island has become so successful economically that it is now threatened with environmental self-destruction. Bermuda is now the most densely populated, isolated geographic and political unit in the world, with a density of five people (and two houses) per acre and a growth rate of more than 500 new housing units a year.

The problems that conservationists confront in trying to resurrect the cahow, and the fragile oceanic island ecosystem that it symbolizes, can only be appreciated within the broader context of this human history. In telling the story of man and the cahow on Bermuda together, from pre-colonial time until the present, I want to try to convey in a chronological perspective what it is like to be involved with a very long-time restoration project — the patience required, the drudgery, the occasional agonizing setback, and, finally, those exhilarating breakthroughs that make it all seem worthwhile. Only in this way does it become apparent how closely the fate of these two species has become linked.

OUR STORY BEGINS more than 400 years ago when Bermuda was first discovered by Portuguese and Spanish navigators exploring the New World. In those days the treasure-laden galleons from the Spanish Main used to sail north from the West Indies to catch the westerly winds for their return home. Many came to grief in sudden, violent storms on Bermuda's uncharted reefs. As darkness overtook the stranded survivors they were terrified by the hordes of nocturnal seabirds coming and going to and from their nesting grounds each night. The sailors took them for evil spirits and named Bermuda "The Isle of Devils". The Spanish never settled Bermuda, but they left a legacy of wild hogs behind to provide food for future shipwrecked mariners. The hogs caused such untold havoc among the seabirds that they ultimately destroyed far more than they provided.

It was in circumstances similar to those of the Spanish that the British first landed on Bermuda. In 1609, a fleet sailing to relieve the Virginia Colony was dispersed by a hurricane near Bermuda and the flagship, the *Sea Venture*, was shipwrecked on its shores. The survivors set about building ships to make their escape. It took them nine months, and in that period Sir George Somers became so impressed by the island's natural beauty and virgin resources that he determined to start a colony.

In the clear surrounding waters the fish were so tame they could be caught by hand. The land itself was covered in dense forest, and two trees in particular were especially common. The Bermuda cedar provided valuable timber for ships and the palmetto provided leaves for thatching the huts and making ropes and basketware. Both trees provided edible berries for food.

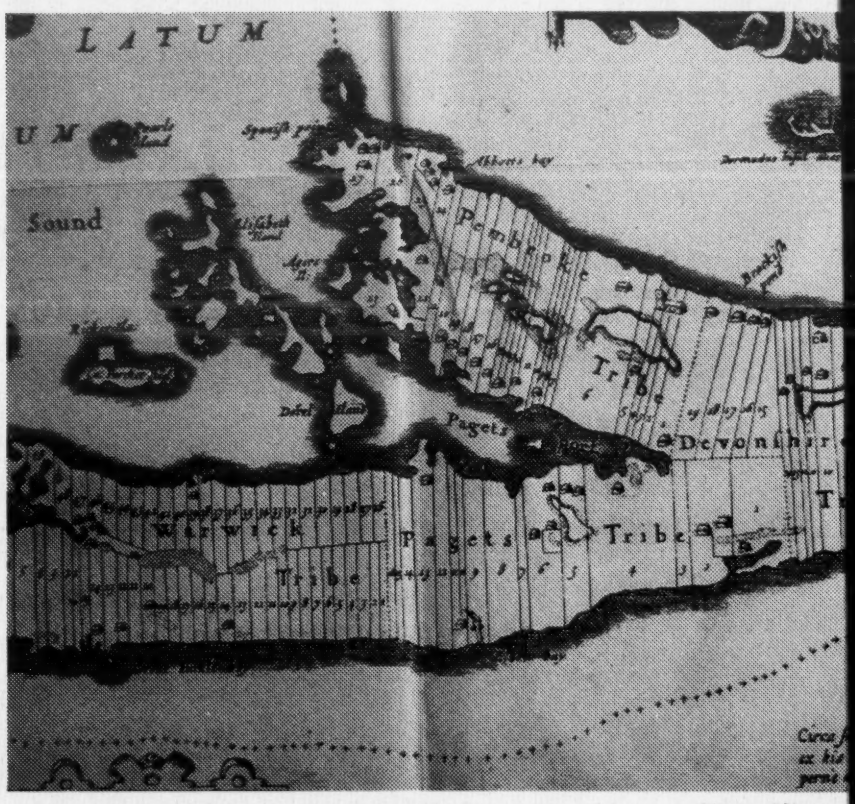
But apart from the pigs released by the Spanish it was a land devoid of mammals. Indeed, the only four-

footed creature to reach Bermuda before man arrived was a small lizard of the skink family. An abundance of sea turtles hauled themselves up on the beaches to bask in the sun or lay their eggs. But by far the most dominant element of the fauna was the birds, because these had no difficulties in colonizing the island across the ocean.

There were landbirds of several species, so tame that they readily landed on the settlers' shoulders. We do not know all the species involved because many were soon to be exterminated by the impact of human settlement. Seabirds were even more abundant, because they were adapted to exploiting the food supply from a vast area of surrounding ocean. By day, tropicbirds or longtails, as we have come to know them, were conspicuous.

These diurnally active seabirds were eclipsed at night by nocturnally active shearwaters and petrels in even larger numbers. One of these, which came to be known as the cahow, outnumbered all of the others put together. The cahow was a ground-nesting, soil-burrowing seabird, and it nested both along the coast and inland, under the forest canopy. Cahows are also some of the fastest and most efficient flyers in the world, and it was this extraordinary ability that enabled them to reach beyond the relatively sterile waters of the Sargasso Sea to feed in the rich upwellings of the Gulf Stream more than 400 miles away.

This then was the island that Sir George Somers and his party had stumbled upon. Although Sir George himself never lived to see it, his dream was realized three years later with the colonization of Bermuda by a group of wealthy investors, who formed the Bermuda Company.



Norwood Survey

BY 1618 THE ISLAND WAS SURVEYED AND SUBdivided into narrow strip shares. There were no roads and the idea was to give each parcel access to the sea. The main island of Bermuda is narrow — only one mile across at its widest point. But the strips ran at right angles to the lay of the land, and this arbitrary surveyor's solution has caused problems to this day.

Colonizers were invited to settle as sharecroppers, but defending the island against a feared invasion by the Spanish took so much time and energy that the settlers were forced to live mainly off the virgin resources. These proved to be so ecologically unstable and fragile that they were soon exhausted.

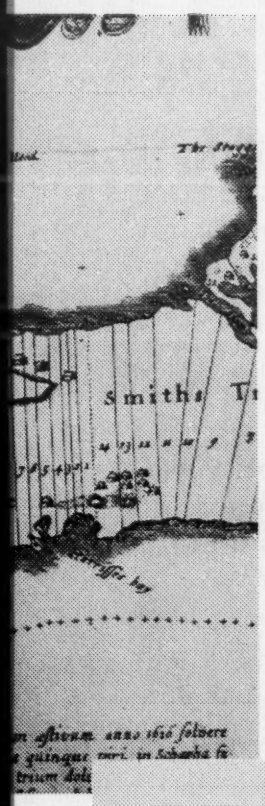
As on other oceanic islands, the fauna of Bermuda proved exceptionally vulnerable because it had evolved in the absence of man and other mammal predators and showed no fear or defences against them when they eventually arrived.

Legislation was passed in order to save the sea turtles as early as 1620. Seabirds were destroyed not only by man himself, but by a plague of rats which reached the islands accidentally in 1614 and by the cats and dogs which were brought in to control the rats. In less than thirty years the abundant cahow was reduced to the verge of extinction and only its fossil bones — which remain in caves and manmade excavations even today — attest to its former abundance.

The virgin forest fared no better as the settlers set to work with axes to fell timber to be shipped back to England, or to build ships and houses, or simply to clear the land for such food and cash crops as corn and tobacco. As a remedy, at the height of the rat plague in 1616, Governor Tucker ordered a general burning of the island, which laid waste to large areas of land.

By 1684 it was all over. The Bermuda Company, having exhausted the virgin resources, disbanded and those settlers who remained were ultimately forced to go it alone, and to learn a new way of life in order to live in balance with the land. Thus evolved a race of true Bermudians who disdained to work the land, but like the cahows turned their attention back to the sea as a source of survival. Fishing the Banks, hunting whales and trading far and wide were carried on in ships built of Bermuda cedar, which fortuitously was the one native tree which seemed to thrive on man's abuse of the land until it soon became completely dominant in the flora.

The more successful of the ships' captains built sturdy houses of Bermuda limestone which, with their whitewashed stone roofs designed to channel rainwater into cisterns, were themselves a masterpiece of cultural evolution and adaptation. (Bermuda has brackish marshes with little open freshwater, but with 60 inches of annual rainfall, the roof collectors and cisterns not only made human habitation possible, they allowed it on any part of the island.) As commerce with the outside world continued, there was a selective introduction of plants either useful or



Surveyors love straight lines, and in this 1618 survey they were put to seemingly good use. On roadless colonial Bermuda, the narrow parcels guaranteed each colonist access to the sea. But this arbitrary solution totally ignored the lay of the land and has been a problem ever since.

On an island with scarce fresh groundwater but lots of rain, this is the human adaptation that evolved and is still used throughout Bermuda — a whitewashed limestone house with stone roof to collect rain into a cistern.

beautiful, such as citrus, bananas, hibiscus, oleander and other exotic trees and shrubs. Many of these went wild and gave new character and colour to Bermuda's landscape.

For nearly two centuries, Bermudians built ships of native cedar and roamed the world as traders, privateers and even in some instances as outright pirates. It was a tough life, during which Bermuda was never able to sustain a population of more than eight or ten thousand people.

WITH THE BEGINNING OF THE 19th CENTURY, three developments enabled the population to begin a gradual increase. The first was the industrial revolution and the general improvement in medical services and health care. The second was a revitalization of Bermuda's agricultural industry. In the mid-1800s Governor Reade recognized the potential of Bermuda's soil and encouraged Portuguese settlers from the Azores to come to Bermuda and teach Bermudians how to farm the land. Thus originated the Portuguese segment of the community, which, even today, remains closely associated with the agricultural and horticultural industries. By the end of the 19th century farming for export to the United States had become the mainstay of the local economy. Between 1900 and 1920 Bermuda was known as New York's winter garden and Bermuda onions were considered to be the best on the market.

The third significant development was the sudden growth of Bermuda's strategic significance, following the Revolutionary War and the Declaration of Independence by the American colonies. Bermuda was now the only base for British naval and military operations in the New World between Halifax and the West Indies. As the Empire reached its zenith in the Victorian era, millions of pounds sterling were poured into the island for defense purposes and it became known as the "Gibraltar of the West". A whole chain of massive new fortifications sprang up around the periphery of the island.

As the population grew, the little white-roofed houses began dotting the landscape in ever-increasing numbers, but it was a population now dependent on, and largely sustained by, strategic and economic factors in the outside world.

The middle and late 19th century was a time of great cultural infusion and contact between Bermuda and the outside world. Many of the officers of the garrisons had an interest in the natural sciences and their explorations provided the first detailed scientific descriptions of Bermuda's geology and natural history, beginning about 1840. Among other things their curiosity inspired them to look into the almost legendary accounts of the cahow bird by the early settlers. Their investigations were concentrated on the remote Castle Harbour Islands, where local fishermen continued to report nocturnally active seabirds which were indiscriminately referred to as pimlico or cahows. These islands were investigated by a number of naturalists between 1840 and 1900, but the only nocturnal seabird they ever succeeded in finding was the pimlico, or Audubon's shearwater. This led some to conclude that "cahow" was a synonym for the shearwater, but others, like the famous naturalist Addison E. Verrill, concluded that the cahow must have been a species of auk!

The confusion lingered on into the early 1900s, when

new evidence clarifying the identity of the bird was discovered in the form of abundant fossil bone deposits in Bermuda limestone caves. By 1915 these bones had been examined by the avian paleontologist R. W. Shufeldt at Carnegie Museum, who identified them as a species of gadfly petrel, quite distinct from the bones of the Audubon's shearwater which also occurred, though in lesser numbers, in the same caves. It was the sheer abundance of these bones together with the pronounced hooked bill that led Shufeldt to conclude that they must represent the legendary hook-billed cahows of the early settlement days.

Then an amazing fact came to light. In 1906 Louis Mowbray, a Bermudian naturalist, had actually collected a living gadfly petrel from a crevice on one of the Castle Harbour Islands. The specimen had been preserved and sent to the American Museum of Natural History. Its bones were now compared with the fossils and found to be identical! Thus was the type specimen of the Bermuda petrel — *Pterodroma cahow* — described in 1916.

It may seem incredible now that no one followed up on this revelation at the time, until we remember that this was during the Great War, when an entire generation of European and American men were wiped out in the muddy trenches of Europe. It was also before the age of conservation when the emphasis was still on collecting and cataloging of species in the world's museums, rather than studying the living organisms in their actual environment.

Thirty years were to pass before another specimen of the cahow turned up: this time a fledgling which was killed when it flew against St. Davids lighthouse in June 1935. The specimen was taken to Dr. William Beebe, who was based on Bermuda doing fish studies with the New York Zoological Society at the time. Beebe was an ardent naturalist and prolific writer who was one of the first to popularize natural history subjects for the general public. He would have liked nothing better than to claim the rediscovery of a bird that had been presumed extinct. Nevertheless, he continued to be confused between the cahow and the shearwater and his photographs confirm that the shearwater was once again the only species whose nests were found. It was Dr. Robert Cushman Murphy, Curator of Birds at the American Museum of Natural History and a world authority on seabirds, who eventually provided the identification of this second known cahow specimen.

INCREASED CONTACT WITH THE OUTSIDE world in the Victorian era also greatly accelerated the number of new plant and animal introductions — a process that was often officially encouraged by the governors, such as John Lefroy. In the 1870s, the beautiful European goldfinch became established as a cage-bird escapee. The giant toads and diminutive noisy whistling frogs were deliberately introduced at about the same time. Even the pretty anolis lizard, which we mistakenly call a chameleon, and think of as a true Bermudian, is a fairly recent arrival, deliberately introduced from Jamaica in 1905.

Bermuda continued to evolve into a kind of semitropical paradise. It was this circumstance, along with a quaint and easy-going way of life — still dependent mainly on bicycles and horses for transport long after the motor car was introduced on the continents — that led to the development of yet another industry, tourism. This new industry soon became the dominant source of revenue for the island.

Wealthy families were able to hop onto a clipper ship in New York and spend their winters on Bermuda, away from the cold and snow. As steamships began to replace sail, this progress was accelerated. A number of large hotels and cottage colonies sprang up and by the 1930s Bermuda was a bustling community with a railway running down the length of the island.

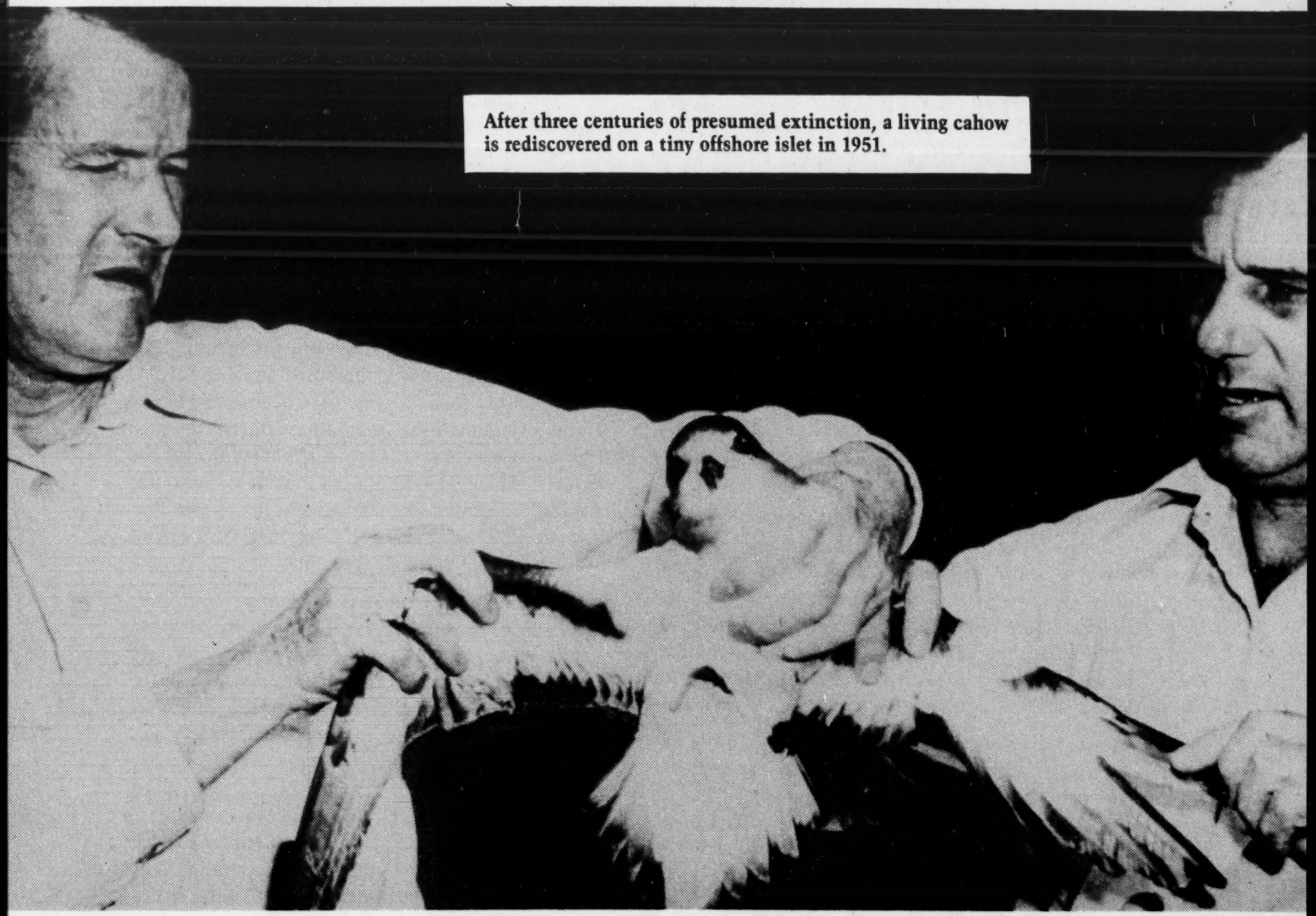
Agriculture was now in decline due to unfavourable tariffs imposed by the United States. However, the farming industry received one final boost after the outbreak of war between America and Japan when the trade in Japanese Easter lilies was suddenly cut off. Bermuda was able to supply the American market with Easter lilies of its own.

When World War II broke out in 1939 Bermuda's strategic location was once again to play an important role. As a result of a wartime lease arrangement between the U.S. and Great Britain, a large area on the western side of St. Davids Island was bulldozed into the sea and mixed with dredged sediment from Castle Harbour to form an airport. Cooper's Island was now linked by dredged fill to St. Davids Island and transformed into a complex of water catchments and underground fuel and ammunition storage bunkers. (Since then, it has even entered the space age with the building of the first down-range NASA tracking station.) Soon aircraft were roaring where only mangrove swamps and quiet backwaters had been before.

It was a traumatic time for the St. Davids Islanders, but from the perspective of the rest of Bermuda, this gargantuan ecological transformation was perceived as having many potential benefits.

As late as 1945 Bermuda retained its rural aspect with dense cedar forests crowning the hills and Easter lilies growing in the valleys. But Bermuda was soon to face another ecological catastrophe.

THE ADVENT OF AN AIRPORT HAD GREATLY facilitated the process of new plant and animal introductions, especially those species (such as insects) with a short life span, which had previously had difficulty surviving the transit time to the islands. In the mid-1940s two small scale insects were accidentally imported to Bermuda on ornamental junipers from California. The Bermuda cedar (actually a juniper) had evolved in isolation from such pests and had no natural resistance to these scales. There were no



After three centuries of presumed extinction, a living cahow is rediscovered on a tiny offshore islet in 1951.

Bermuda Newsbureau

parasites or predators to keep them under control. In the space of only three years, between 1948 and 1951, more than 96 percent of those trees which had formed a virtual monoculture on the island, were destroyed. It was a harsh reminder, once again, of the ecological fragility that is so characteristic of oceanic island fauna and flora.

Due to the cedar forest decimation, for the first time in their history Bermudians began to think seriously about the need for conservation. No event could have been more timely to focus this concern, or to give hope that all need not be lost, than the rediscovery in 1951 of the cahow by Dr. Robert Cushman Murphy and Louis S. Mowbray. (The latter was the son of the man who collected the original specimen; he had also become curator of the Bermuda Government Aquarium, in the footsteps of his father.)

It seemed inconceivable that the cahow, the most vulnerable species of all, which had declined to oblivion within the first few years of Bermuda's settlement, could possibly have survived up to and beyond such recent traumatic events as the bulldozing of the airport — which destroyed more than half of its original nesting islands — and the loss of the cedar. Nevertheless, a third cahow was found washed up dead on the beach of Cooper's Island in 1945 and provided the inspiration for a last-ditch search expedition.

I was only a schoolboy at the time, but my budding interest in birds secured me an invitation to join the expedition on the day of rediscovery and I will never forget the elation on Dr. Murphy's face when he and Mowbray succeeded in noosing a bird out of its deep nesting crevice, held it up to the light, and exclaimed, "By Gad, the cahow!"

Incredibly it had survived for over three and a half centuries on a few inconsequential offshore islets, totalling no more than three acres in area, which the mammal predators had been unable to colonize. The government immediately declared these islands Sanctuaries in 1951 and a conservation programme was launched to try to help the bird.

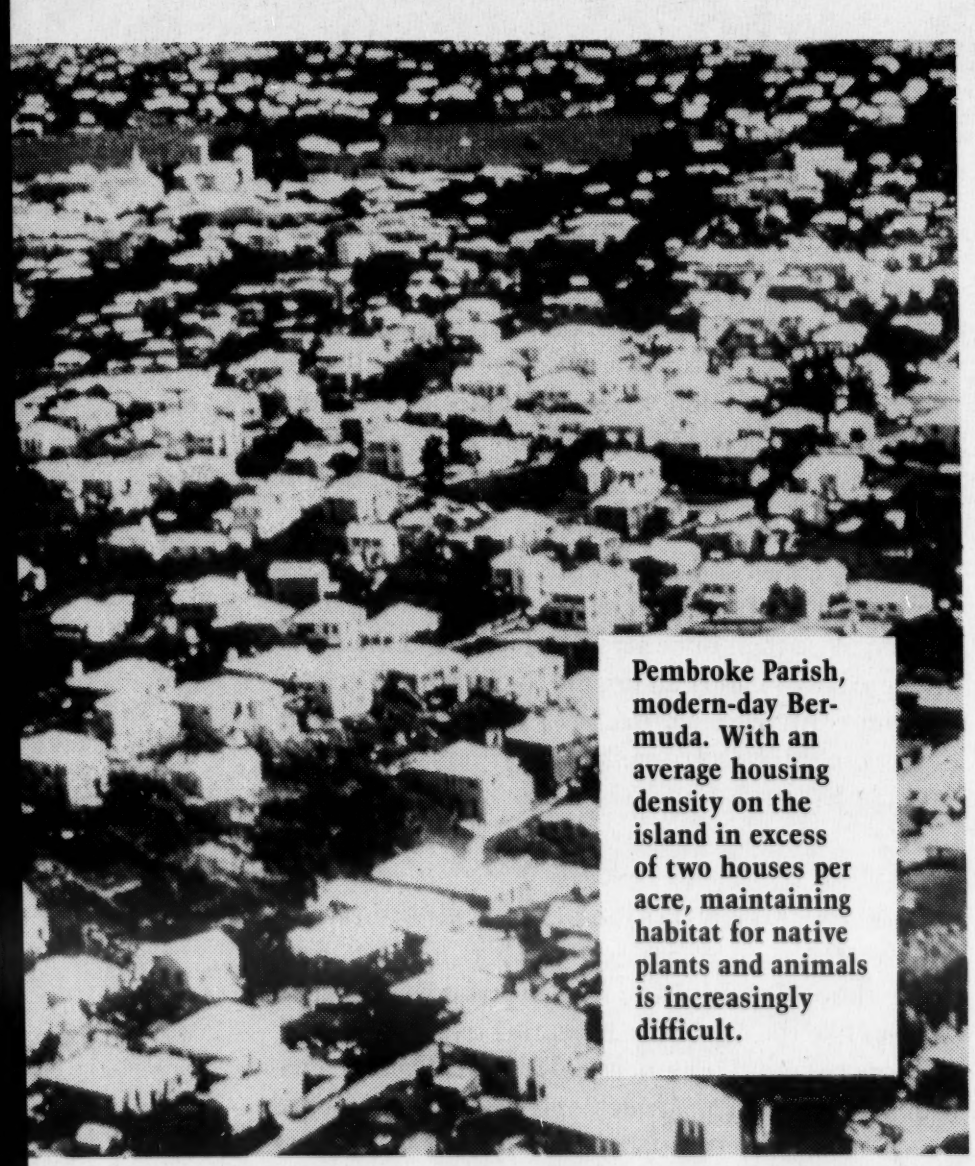
TO REPLACE THE DEAD CEDAR FOREST, A MASsive reforestation programme was begun at about the same time. The emphasis was on fast-growing exotic species like the Australian casuarina tree and a variety of more colourful ornamentals such as the poinciana. Concentrated on roadsides and government-owned lands at first, it eventually led to the establishment

of parks and formal gardens for the recreational benefit of the general public. Reserves for the conservation of native flora and fauna generally were still largely neglected — as illustrated by the government's policy towards garbage disposal. Indeed, it was the use of Bermuda's marshlands for garbage disposal, with the intent of eliminating them in pursuit of a "final solution" to the mosquito control problem, that led eventually to the formation of such non-governmental conservation agencies as the Bermuda National Trust and the Bermuda Audubon Society.

The opening of the new airport to commercial air traffic after the war brought a rapid expansion of the tourist trade. In the past, our tourism had been largely restricted to smaller hotels and cottage colonies, but the explosive demand for more rooms ultimately led to multi-storey, convention-oriented hotels.

Such massive constructions posed new problems for water provision, sewage treatment and especially for transportation. The introduction of the motor car after 1946, to narrow and winding roads, gave rise to immediate problems which have since grown to nightmarish proportions as a rapidly increasing material standard of living enabled nearly everyone to afford cars.

The decade of the 1960s saw such a rape of the environment for new real estate subdivisions that the government was forced to act by imposing stringent new planning regulations. But even though a planning department was established in 1965 and a succession of development plans with different categories of zoning have been set into law, the fact remains that between 300 and 600 new housing units are still being added to the diminutive and finite landscape each year. Farmland, once the mainstay of our economy, has dwindled from 3,000 acres in 1920 to a low of 320 acres by 1987.



Pembroke Parish, modern-day Bermuda. With an average housing density on the island in excess of two houses per acre, maintaining habitat for native plants and animals is increasingly difficult.

The most insidious effect of urbanization in Bermuda has been the steady impoverishment of our natural environment. Now that the housing densities have risen to more than two per acre, the intervening open spaces have become so fragmented and degraded by wind exposure that they are often deemed no longer worthy of maintaining in a natural state. The most frightening aspect of this trend is that it involves the entire island and is wreaking havoc with that resource of natural beauty, peace and tranquility — the Bermuda Image — which is the fundamental selling point of our tourist-dominated economy.

Bermuda is turning into a city without a countryside. Open spaces survive only as a few isolated green islands, completely surrounded by suburbia. We are about to reach a stage where the only open space to remain will be that which has been deliberately set aside in a national system of recreational areas, parks and nature reserves. Work is already well under way on the establishment of a National Parks System aided by a National Parks Act passed in 1986, but to date only 600 acres of land have been secured for passive recreational use and environmental conservation. This is a costly process, because back in 1618 the *entire* island had been subdivided. All land needed subsequently for schools, parks, military forts — to say nothing of ecological preserves — has had to be bought back from private owners. To give some idea of the small scale and intensity of land use on Bermuda, the largest acreage of open space so far set aside is dedicated to intensive recreation, and 580 acres of that, or 5 percent of Bermuda's land area, is devoted to golf courses.

The task at hand is urgent and complex but the miracle of Bermuda is that despite such intense development and abuse so many fragile features of our unique natural heritage survive in small pockets here and there. We haven't lost a species since 1900.

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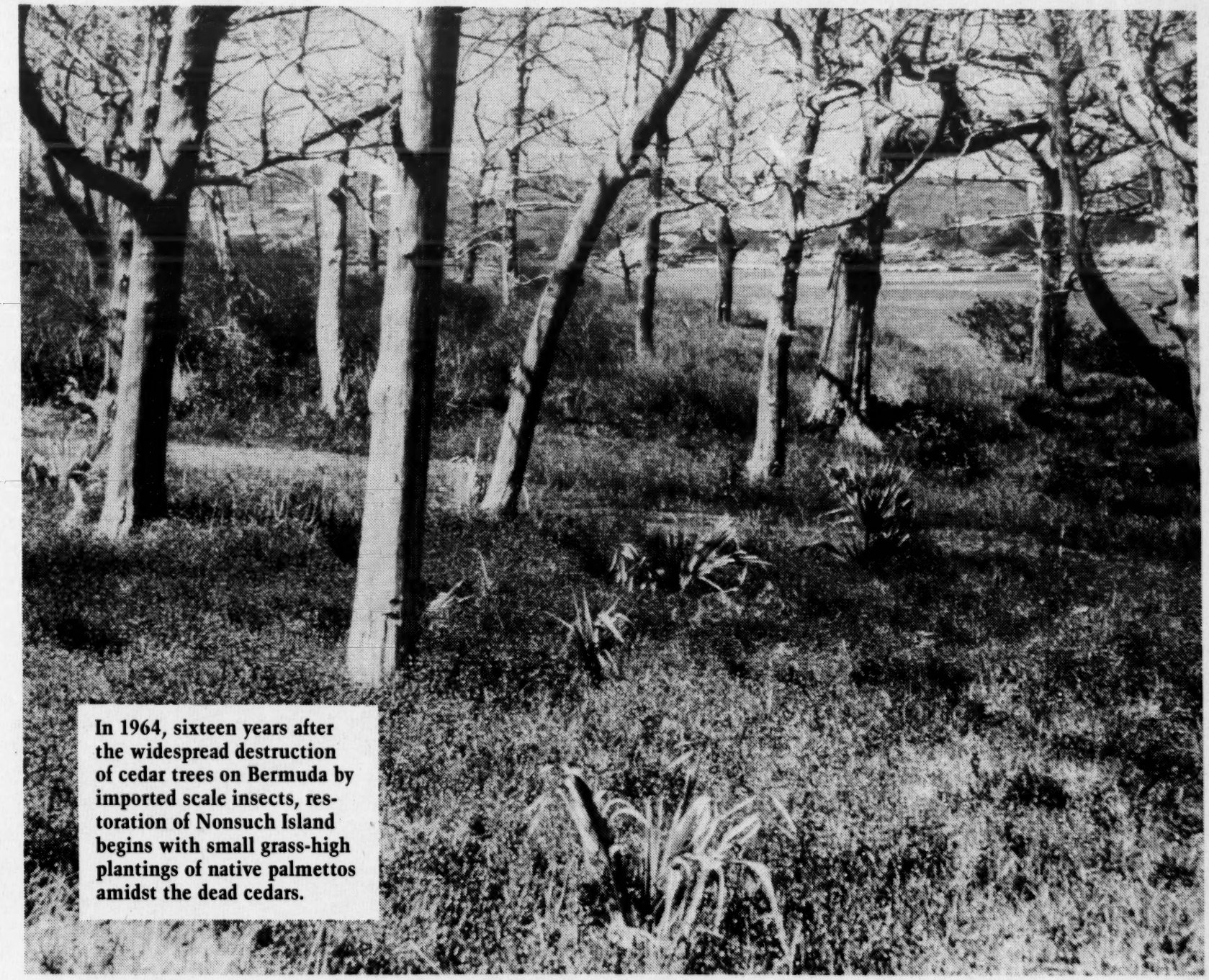
OF ALL THE NATURE RESERVES WHICH HAVE been established on Bermuda since the 1960s none has attracted more attention internationally than the Castle Harbour Island group where the rediscovery of the cahow in 1951 has inspired an ambitious restoration effort to create a Living Museum of precolonial Bermuda on 15-acre Nonsuch Island.

Nonsuch Island differs from most other nature reserves in that it is a product of *restoration* rather than protection. When first established in 1961 it was essentially a desert island, having formerly been used



In 1964, sixteen years after the widespread destruction of cedar trees on Bermuda by imported scale insects, restoration of Nonsuch Island begins with small grass-high plantings of native palmettos amidst the dead cedars.

as a yellow fever quarantine hospital and later as a reformatory. Its once-magnificent cedar forest had been entirely destroyed by the cedar scale epidemic; wind, salt spray and free-roaming goats had reduced the remaining vegetation to a dense grass cover. The bird life had disappeared with the forest.

Nevertheless, its potential for restoration as a reserve for endangered native flora and fauna was enormous. In the first place its isolation from Bermuda's mainland meant that many of the introduced exotic species had not yet reached the island and could be prevented from doing so by quarantine measures. Notably absent from Nonsuch Island, when I first got to know it, were the entire range of naturalized tree species which are now dominant on Bermuda's mainland. Also absent were the introduced house mouse, toad and whistling frog. The anolis lizard had only just reached the island and was still rare. Although rats had also colonized by swimming from the main island I soon discovered that it was possible to eliminate them completely with an island-wide baiting program using Warfarin. One species which managed to survive on Nonsuch at precolonial levels of abundance was the endemic Bermuda rock lizard or skink., and a survey conducted on 1969 revealed that it was twenty times more common on Nonsuch than on Bermuda's mainland.

The second feature of Nonsuch which made it so ideal as a reserve for endangered flora and fauna was its diverse topography, which made it possible to restore samples of all the major habitats of precolonial Bermuda except the wetlands. There was a surf beach with a dune; a sheltered cove beach; almost a mile of rugged coastline with cliffs and extensive tidepools; and a sheltered central vale with up to five feet depth of soil. There was even the potential for creating wetland habitats if minor modifications were made to the topography.

The cahow conservation programme was launched immediately after the discovery of the breeding islets in 1951. It soon became apparent why the cahow had escaped detection for so long. The bird is an extremely elusive and difficult subject to study. No one has ever photographed one on the open ocean, where the cahow spends most of its life. Returning from the ocean to breed only on the darkest and stormiest nights of winter, when its isolated and wave-swept nesting islets are least accessible to boats, it nests only in the deepest crevices of the rocky cliffs. It is impossible to see

the nesting birds without the aid of a bright flashlight and a mirror attached to a pole. Cahows seldom leave any sign of their coming and going at nest entrances; even when they do, rain and salt spray soon obliterate the evidence.

It took ten years just to discover the entire nesting population of 18 pairs. By that time research had revealed that the major factor limiting the cahow was not rat predation, as previously suspected, but nest-site competition with the still common white-tailed tropicbird or longtail, whose breeding niche has always been the natural crevices and holes of Bermuda's coastal cliffs. In the absence of sufficient soil for digging their own burrows, two-thirds of the surviving cahows were trying to nest in coastal cliffs. This might not have mattered except that the breeding seasons of the two species overlapped. The winter-breeding cahows lay their single egg in January and are already leaving their newly hatched chick unattended in daytime when the larger and more aggressive tropicbirds return to breed in early March. These birds would simply peck the cahow chick to death, push it to one side and take over the nest for their own purposes. The adults of the two species rarely met, because by the time the tropicbirds laid and began staying overnight to incubate, the nocturnal cahows had abandoned their failed nest for the year. Both species are long-lived and faithful to the same nestsite, so the pattern would repeat itself year after year. It is incredible that the cahow could have survived for so long when two-thirds of the breeding pairs were being subjected to this loss every year.

(Above) The white-tailed tropicbird kills cahow chicks in competition for the cliffside burrows both species require. Manmade "Bafflers" make the cahows' burrows inaccessible to the larger birds.

(Below) Cahow condominums. On a rocky islet with no soil for the birds to do it themselves, a worker constructs "government housing." Cahows enter nests through the long tunnels. The circular holes in the roofs are for observation of each year's fledglings, and are covered with cement lids.

The first major emphasis of the conservation programme, therefore, apart from rat control, was to solve this problem of nestsite competition. This was eventually achieved with a simple device called a baffler, which took advantage of the size difference between the two species. By fitting a board with a fixed-dimension, elliptical hole in the entrance to each crevice, the larger tropicbird could be excluded — just as starlings can be excluded from bluebird nestboxes. When this program was fully implemented by 1961, it effectively trebled the reproductive success and laid the foundation for recovery. No chicks have been lost to tropicbirds since that time.

I WAS AWAY FROM BERMUDA COMPLETING MY education during much of this time, but my first task when I returned from Cornell in 1957 to join the programme under Mowbray's direction, was to locate the entire population and make sure that all nestsites were fitted with bafflers. I then turned my attention to longer-term plans to accommodate the projected in-

crease. Our research had indicated that the nestsite competition with the tropicbird was an artificially induced problem, caused by the displacement of the cahow from its optimum breeding niche. The accounts of the early settlers clearly indicated that on precolonial Bermuda, the cahow nested inland under the forest, in soil burrows excavated by the birds. It was the inland population that was most vulnerable to the introduced pigs, dogs, rats and cats and which was so rapidly destroyed. Only those few cahows which tried to nest on the peripheral offshore islands had any chance at all against the predators, but here they encountered increasing difficulty finding enough soil for burrowing, because of erosion due to the small size and exposure of the islets. More and more birds were forced to use natural crevices and holes, which brought them into direct conflict with the tropicbird.

In an attempt to recreate the original breeding niche separation I began constructing nesting burrows artificially on the vegetated tops of the nesting islets, where the tropicbirds were less likely to find them. This "government housing scheme", as I dubbed it, has gradually expanded until now more than half of the cahows depend on these artificial nest sites. They really had no choice because new pairs will colonize only close to pre-established pairs and there simply are no other suitable natural crevices on these islands.

While we realized that the population would continue to depend on man-made bafflers and artificial burrows for many decades, we were nevertheless anxious to lay the foundation for a time when the cahow could spread back onto one of the larger islands, with sufficient soil to enable the birds to dig their own burrows.

The most obvious island to accommodate such an expansion was Nonsuch because of its close proximity to the existing cahow islets and its isolation from the rest of Bermuda, making its management as a predator-free reserve feasible by quarantine. We finally persuaded the government to add Nonsuch to the sanctuary system by declaration in 1961. The following year one of the vacant and derelict quarantine hospital buildings was restored into a house, so I could move onto the island as a warden. I was newly married at the time and needed a place to live. Despite the hardship of island living — there was no electricity or telephone when I first moved out — I could hardly have dreamed of a greater paradise.

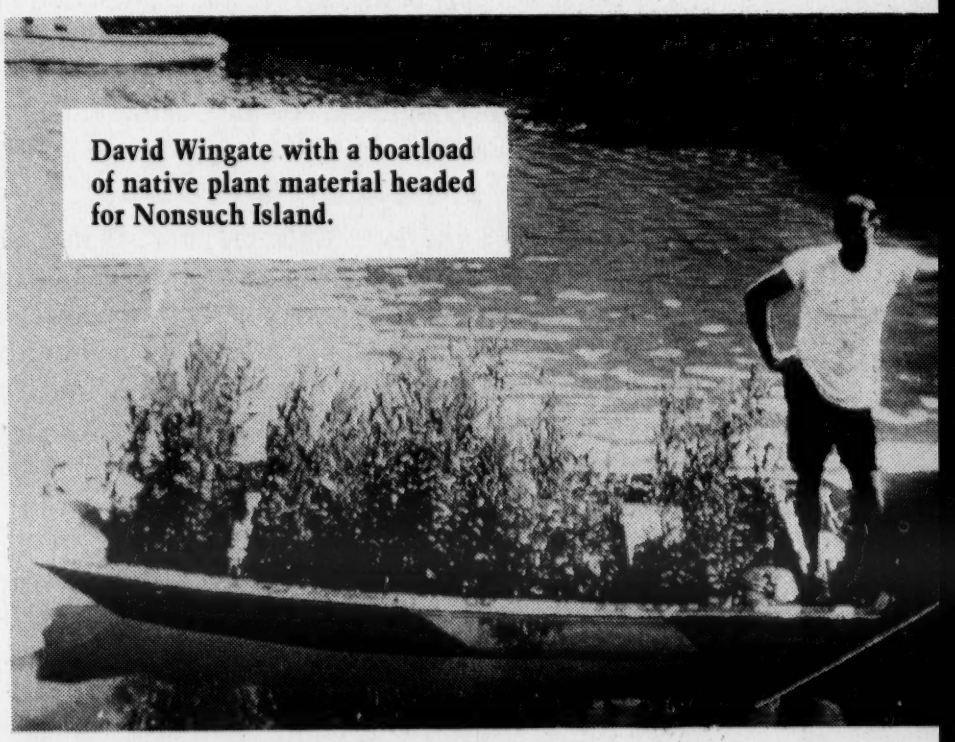
During that first year on the island, the concept of the Living Museum gradually evolved. I already knew that the cahow was unlikely to increase fast enough to spread back onto Nonsuch in my lifetime, because of its extremely low reproductive potential. Each pair produces only one egg a year, and only about half of these are fledged successfully. In addition, it takes eight to ten years before those fledglings reach breeding age, and during this time natural mortality reduces their number even further. By 1965 there were new and ominous signs that the breeding success was declining even further. The symptoms observed were identical to those being noted in populations of peregrines, ospreys, bald eagles and other predatory birds. After long and tedious international research the cause was eventually identified as the breakdown product of DDT poison in the environment.

The mode of DDT transport to the cahow was via the atmosphere and thence as fallout in rain to the ocean, downwind from the continent. Here, being fat soluble, it was immediately absorbed into the phytoplankton and thus into the foodchain where it became concentrated to dangerous levels by the process known as biological magnification. The cahow, feeding at the end of the foodchain, obtained just enough poison to cause eggshell thinning by enzymatic imbalances. The thin-shelled eggs were vulnerable to breakage in the nest, reducing breeding success from 60 percent to as low as 35 percent by 1967. The worst aspect of this problem was that it was international in scope and totally beyond my personal control.

The progress of the cahow breeding program was agonizingly slow; with the added menace of DDT, my efforts became a numbed routine. I needed a distraction, something with more hope of success, to justify Nonsuch Island's continued existence as a nature reserve. This is when it occurred to me to take advantage of its unique isolation and topography, and make it a sanctuary for all of Bermuda's terrestrial flora and fauna.

There was no money for restoration in the budget in those days. I was on a grant working on the cahows, and wasn't even employed by the government yet. The restoration of Nonsuch Island began as a spare-time diversion, but it quickly became my main project.

Work began on the Living Museum in 1963. The first task was to lay the foundation for restoring the native forest cover. In a sense I was starting with a clean slate, because when the cedars went the rest of the native forest and landbirds went with them. They formed the



David Wingate with a boatload of native plant material headed for Nonsuch Island.

(Top) 1975 — The restoration plantings slowly begin to resemble a forest. Faster-growing exotic species were used as perimeter windbreaks and later removed.

(Above) A Bermuda white-eyed vireo feeds nestlings in a casuarina shrub, planted as a windbreak.

backbone, the windbreak that protected all the other native species.

Artificially recreating the native forest required careful research, not only of the early historical descriptions and botanical surveys of the island, but also first-hand study of those few remaining, inaccessible corners of the island where remnants of the original flora had survived. Those remnants also supplied the seed of rare species for nursery propagation.

Between 1963 and 1972 I planted more than 8,000 trees and woody shrubs on Nonsuch Island, representing the full range of Bermuda's native forest species. It took a lot of persuasion to convince the government nursery to start raising its own native trees. Much of the plant material I had to propagate myself. Progress was painfully slow at first, because with no windbreaks severe winter gales and salt spray burned the little palmetto palms, olivewoods and other native trees right back to grass level. Even as late as 1969, Nonsuch barely looked any different, with the skeletons of the dead cedars still dominant above the grassy landscape. I began to fear that I would never even see the fruits of this labour in my lifetime. I was really doing something for the future, just hoping that the next generation would still believe in it.

In an effort to speed things up, I began using castor pomace fertilizer, and in 1967 I decided to plant the periphery of the island with a windbreak forest of casuarinas, the fast-growing, non-native, evergreen tree which was used extensively on mainland Bermuda for reforestation purposes after the loss of the cedars. While these two steps certainly accelerated the growth of my native forest, they also created some unexpected problems of their own. The tall-growing and wispy casuarinas could only be made effective as a windbreak by frequent topping, to make them dense and bushy like the cedar. This work was time-consuming and labour-intensive, and I began phasing the casuarinas out as soon as practical. The castor pomace fertilizer turned out to be an ideal high-protein food for the soil-burrowing, native landcrab, which began to multiply rapidly, causing soil erosion problems.

Nevertheless, the windbreak of casuarinas around the periphery of the island made it possible for the native forest to grow a little faster, and once it began to knit together into a thicket, the winter gales rode over the top. When that happened, the forest really began to take off, and I began to get some habitat diversity — microhabitats — and I could begin to seed in some of the more fragile understory species.

Throughout this period I had been unable to include the endemic Bermuda cedar in my reforestation, because the scale insects were still abundant and seedling trees were barely viable. However, approximate-

ly 4 percent of the mainland forest had managed to survive the scale, and by 1970 it had become apparent that natural selection, combined with effective biological control methods implemented by the government, were beginning to turn the tide. I finally undertook my first mass-planting of 600 Bermuda cedars on Nonsuch in 1972. Although death rates were high, approximately 200 ultimately survived and emerged above the other slow-growing native trees to dominate the canopy in several parts of the island.

BY THE EARLY SEVENTIES, I HAD AN EMERGING native forest, and it was now possible to begin thinking about restoring the native fauna which had lived in that forest. Some of the endemic components of that fauna had become extinct and were lost forever, but others, such as the local race of the white-eyed vireo, still persisted on Bermuda's mainland. In addition, a number of native species, though exterminated on Bermuda, were still potentially available for reintroduction from other parts of their range.

My first attempt at faunal introduction involved the Bermuda race of the white-eyed vireo. I had expected it to recolonize naturally from Bermuda's mainland, once the forest had become re-established on Nonsuch. Indeed, on several occasions I thought it had done so, when vireos were sighted on the island. By 1972 I had discovered that these birds were transients of the American race, which migrated between North and South America. The local race has greatly reduced flying ability, an evolutionary trend towards flightlessness common to many landbirds on mammal-free oceanic islands. It was so sedentary that it had failed to make the crossing over one mile of water. To overcome this problem I netted several of the vireos on the main island and released them on Nonsuch. They settled so successfully into the recreated environment that they now exhibit a population density twice that on Bermuda's mainland. They even seem to be reverting to their original fearlessness, as described by the early settlers.

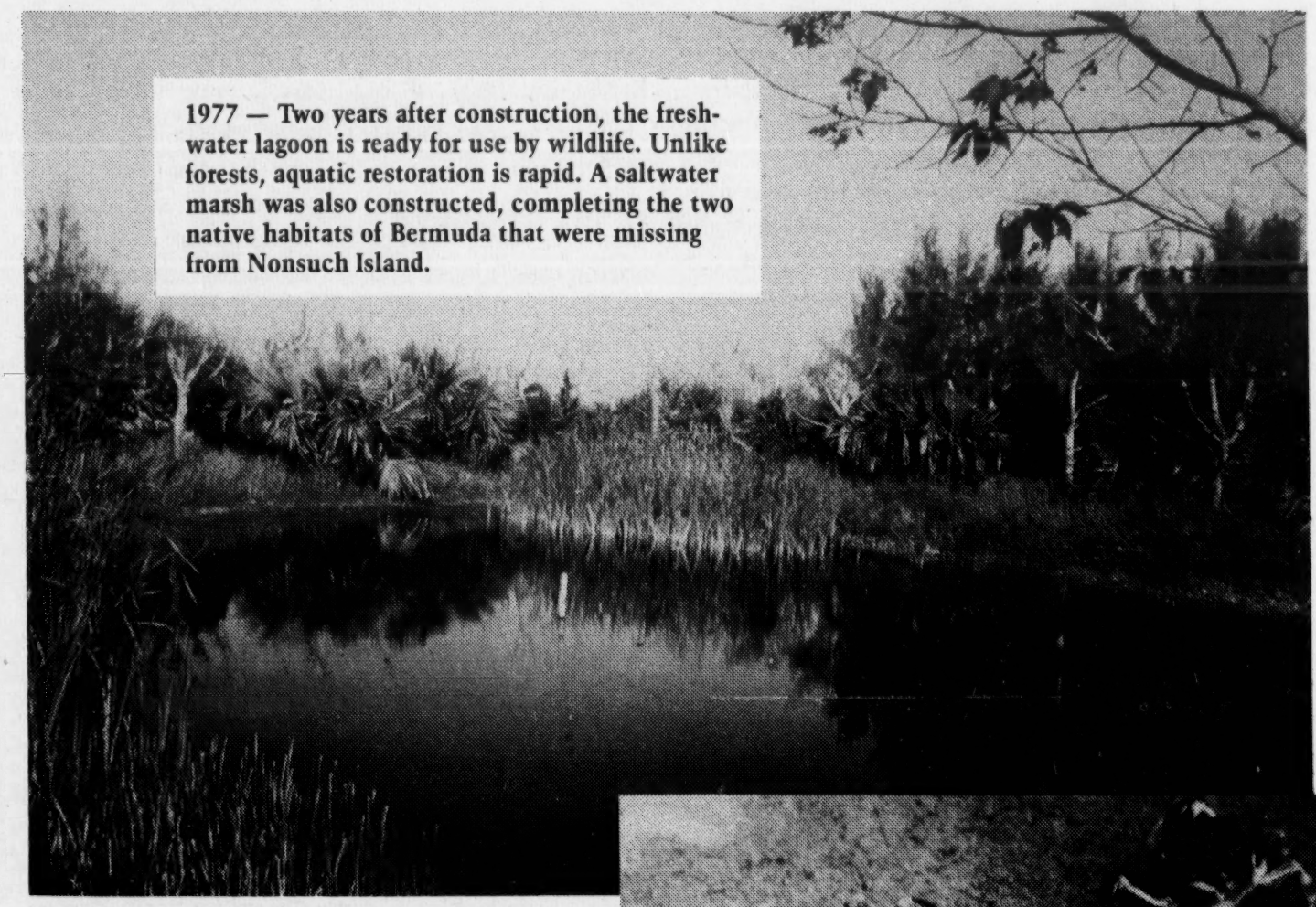
My next attempt at a faunal reintroduction involved the green turtle, a species which still lived in Bermuda waters but which had been exterminated as a breeding species during the early years. In 1964 I wrote to Dr. Archie Carr, foremost authority on sea turtle conservation in the New World, to enquire whether he knew of any way to induce sea turtles to breed on Bermuda again. It turned out that he was conducting experiments on that very problem at the time, in a project known as "Operation Green Turtle". This involved the transplanting of batches of hatchlings from the last huge nesting colony at Tortuguero, Costa Rica, to beaches on former nesting islands where they had been exterminated. The experiment was based on the hypothesis that if the hatchlings enter the sea from a particular beach, they imprint on that beach and return there when mature. Between 1968 and 1978 a total of 16,000 green turtles were hatched and released from hatcheries on Nonsuch Island, South Beach dune and another nearby main island beach.

Unexpected developments before the end of the experiment cast doubt on the likelihood of success. Biologists in America discovered that the sex of green turtles is determined by the temperature of the sand during mid-incubation. A 2^0 centigrade variation makes the difference between all females and all males — males being produced at the lower temperature. We checked the temperatures of the hatchery beaches and were horrified to learn that they were generally well below those at which all eggs become males. This finding raises some interesting questions about Bermuda's precolonial sea turtle population and underscores the importance of preserving isolated genetic stocks or subspecies, on the basis that they may have evolved specific adaptations. It may well be that the original Bermuda population had the ability to achieve a balanced sex ratio at lower temperatures or was otherwise adapted to select sites where the correct ground temperature occurred.

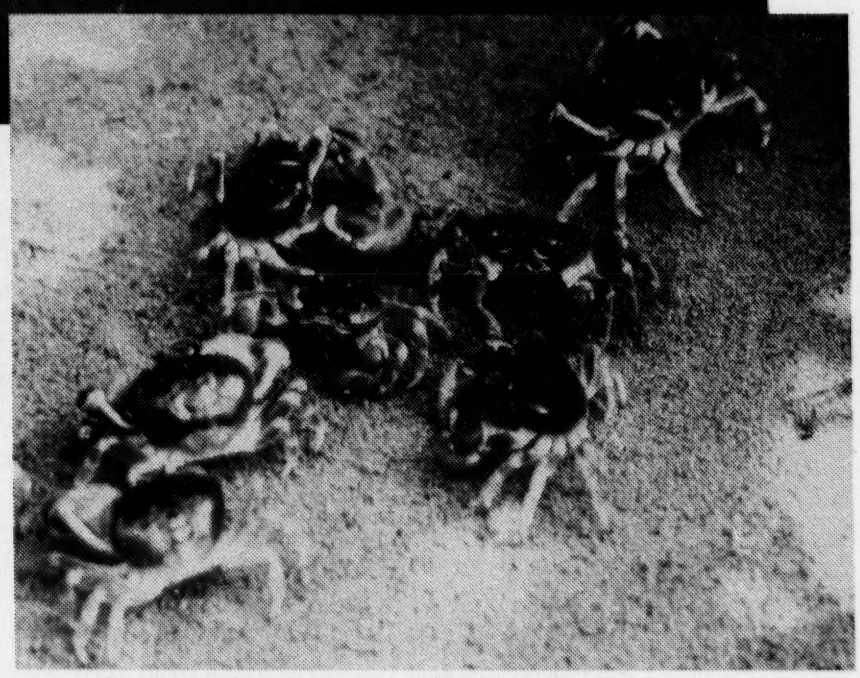
In 1975 my dream of artificially creating wetland habitats on Nonsuch was finally realized with a grant from the New York Zoological Society. The U.S. Navy provided the loan of a landing barge for heavy equipment. No harm was caused to the developing native forest, because the sites for the two ponds had been reserved from the beginning and the pathways were just able to accommodate a bulldozer.

The small freshwater pond was created by slightly deepening a depression between two hills, laying down an impermeable plastic liner and covering it with soil. The liner formed a hanging water table, which trapped rainfall to produce a four-foot-deep pond. As soon as the average water level — determined by the equilibrium between rainfall and evaporation — was es-

1975 — Constructing the artificial freshwater pond. A bulldozer scooped the pit and a plastic barrier was installed. Here it is covered with soil so aquatic plants can root.



1977 — Two years after construction, the freshwater lagoon is ready for use by wildlife. Unlike forests, aquatic restoration is rapid. A saltwater marsh was also constructed, completing the two native habitats of Bermuda that were missing from Nonsuch Island.



Landcrabs, scourge of tropical golf courses. When their natural enemy, the yellow-crowned night heron, was exterminated, the landcrabs became pests. Reintroduction of the birds provided biological control, eliminating the need for poisoning the crabs.

tablished, I planted the edge with the various native marshplants of Bermuda. Fish and invertebrates were introduced by transplanting buckets of water and mud. Within little over a year I had established a community that was indistinguishable from a natural marsh.

The beauty of wetland habitats for the restorationist is that you can create a mature community in just a couple of years. With the forest I'm still waiting — it's been 26 years and it is only a young mature forest.

The saltmarsh pond was created in a very low-lying area immediately behind the South Beach dune by simply excavating to below the water table level. In this area a pond resulted from natural seepage without the need for a liner. Once again the appropriate submergent plant and invertebrate communities were established by transplanting buckets of water and mud from main island salt marshes. In addition mangrove trees were planted around the perimeter and a rare endemic killifish was introduced from a small mainland pond.

With the completion of the two ponds, all of Bermuda's precolonial habitats were now represented on Nonsuch Island. Both of these ponds have since become attractive habitats for a wide variety of migrant waterbirds, adding greatly to the interest and beauty of the island. A bird blind has been built at the edge of the freshwater pond to facilitate viewing without disturbance.

The ponds were a prerequisite for my next project in restoration, which was the reestablishment of a species that had been totally exterminated from Bermuda. The early settlers had described herons and egrets of several species, so tame that they could be clubbed down out of the trees. It wasn't long before they were completely exterminated. Although their nearest relations — migrant herons from North America — continue to be common as transients and winterers, they had never reestablished nesting colonies. For several years I had noticed that one of these species, the crustacean-eating yellow-crowned night heron, would eat my fertilizer-feeding landcrabs during stopovers on

Nonsuch. It occurred to me that if I could induce night herons to breed on Bermuda, they might serve as a valuable biological control for these crabs, which are generally regarded as a pest on lawns and golf courses.

The fossil discovery of a night heron skeleton in a Bermuda sinkhole at about this time confirmed the wisdom of my choice. The endemic Bermuda night heron had clearly been derived from the yellow-crown, but had evolved shorter legs and a heavier bill, adaptations specific to feeding on the heavily armoured terrestrial landcrabs.

To induce them to become residents, I decided to use the same technique that had been used with the green turtle, bringing in nestlings and weaning them into the wild on a diet of landcrabs. With Bermuda government funding and support as a landcrab biological control measure, I was able to obtain nestlings from a large rookery in Tampa Bay, Florida. From 1976 to 1978, a total of 44 yellow-crown nestlings were shipped to Nonsuch and reared in an abandoned building. Although hand-rearing of this species had never been attempted before, it proved to be the easiest and most successful of my restoration projects. Night herons feed their chicks by regurgitating into the nest rather than feeding each chick directly. This meant that I merely had to place the chopped-up crabs onto a food tray. Whenever the chicks were hungry they would gather around this tray like barnyard chickens. As soon as they were old enough to fly, I permitted them to escape from the building to learn to hunt on their own, but they continued to return to the food tray until they were proficient.

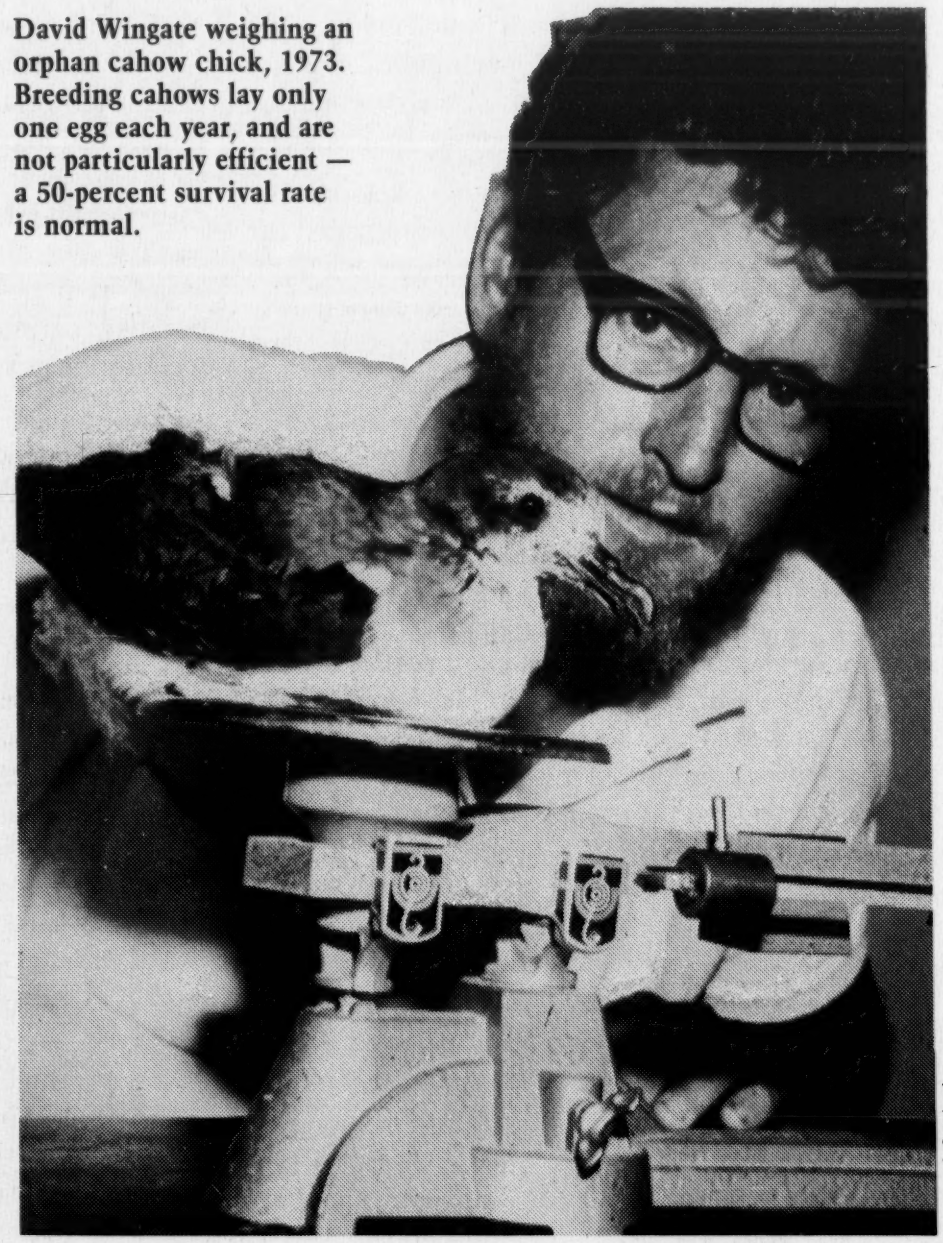
As I had hoped, these herons did not leave Bermuda, although they wandered extensively in the landcrab-infested areas beyond Nonsuch Island. As early as 1980 I confirmed successful nesting in the Walsingham Nature Reserve — a 40-acre wilderness tract on the opposite side of Castle Harbour. The population has continued to increase ever since.

At first I was disappointed that they did not nest on Nonsuch Island. They made good use of its ponds, often bringing their fledglings over to bathe and roost there as soon as they could fly. Then in 1985 I discovered that a small nesting colony had established in coastal buttonwood bushes on the isolated South Point of Nonsuch. As the native forest continued to grow, it gradually became more favourable for them. After a quarter-century, the palmettos, olivewoods and cedars were at last attaining maturity and beginning to self-seed. Everything was knitting together. My elation could hardly be contained when in 1987 I found night herons nesting throughout the island's

A yellow-crowned night heron nestling, transported from Florida.

(Below) Dinnertime for baby night herons; chopped landcrab was always on the menu.

forest, just as they must have done in precolonial time. They continued to feed almost entirely on landcrabs, reducing the Nonsuch population to manageable levels again and doing such an effective job on the golf courses on Bermuda's mainland that the managers were soon able to stop the use of poison baits for crab control.



David Wingate weighing an orphan cahow chick, 1973. Breeding cahows lay only one egg each year, and are not particularly efficient — a 50-percent survival rate is normal.

Stephen S. Bainbridge

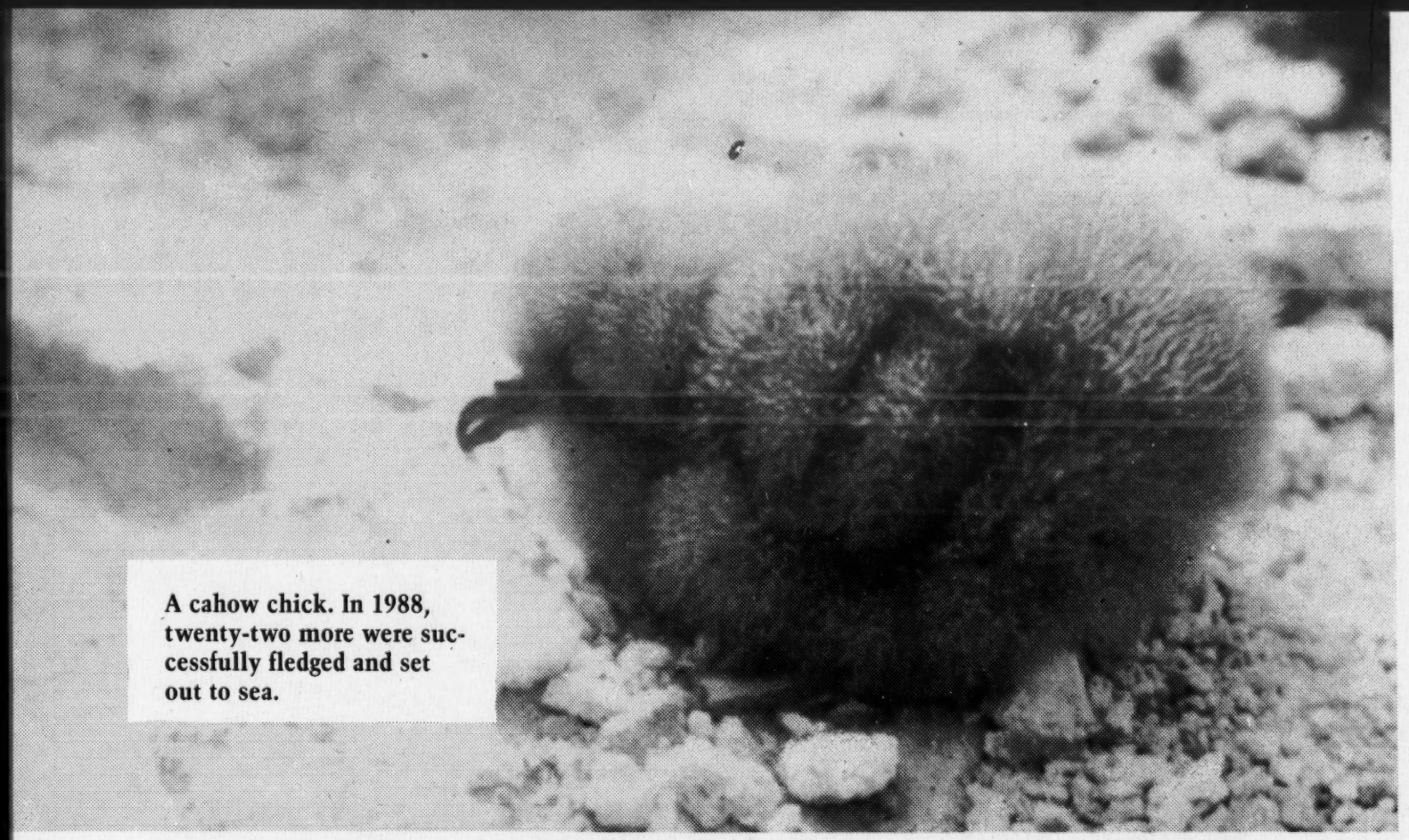
THE SUCCESS OF THE NIGHT heron reintroduction was the first to demonstrate that the Living Museum concept could have benefits for the rest of Bermuda, beyond the animals and plants living on Nonsuch Island. Others were soon to follow.

In 1982 a local marine archeologist and treasure diver, Teddy Tucker, returned from the Bahamas with a small collection of living topshells, *Cittarium pica*, an economically important food species of the intertidal zone throughout the West Indies. Early accounts record that this species was common in the waters of Bermuda too, providing an important source of food during the rat-induced famine of 1614 - 1618. This is confirmed by the abundance of empty shells, which can still be found on any shallow-water dive around the island. Overharvesting had probably tipped the balance to extinction, since this was the northern limit of the species' range. Eighty-two *Cittarium* were reintroduced into the intertidal zone of Nonsuch by arrangement with the Bermuda Fisheries Department in 1982. Survival and growth rates were excellent, despite occasional predation by octopus. By 1987 there were still 35 mature specimens and the first confirmation of successful reproduction was obtained. If this restocking experiment succeeds, a potentially important fisheries resource will have been restored as another economic benefit of the Living Museum. And the empty shells of *Cittarium* were once the home of the land hermitcrab, now rare on Bermuda. If the topshells become common again, these crabs may also multiply again and roam under the native forest canopy of Nonsuch, protected from the night herons by the heavy armour of their topshell homes.

As the native terrestrial ecosystem of Nonsuch Island has gradually begun to fit back together again like the pieces of a puzzle, the most important benefit has gradually become apparent — its value as an environmental education center for Bermuda's schoolchildren. Curiosity about the project has grown steadily and requests for field trips began as far back as the 1960s. As the project has matured, the island has become ever more diverse and interesting and its value as an aid in teaching about Bermuda's heritage has increased. By confining visitors to a system of grassy trailways and making use of blinds, it is possible to show all of Bermuda's terrestrial habitats in microcosm without disturbing the wildlife. Herons now nest within sight of the trail, giving a genuine feeling for the life of precolonial Bermuda.

The Living Museum continues to provide new insights, too. On September 25, 1987 Bermuda experienced its first hurricane in 25 years and the most severe winds and sea flooding in almost a century. In the 35 years since the loss of the native Bermuda cedars, an entirely new flora had developed on the main island through deliberate and natural reforestation. It was characterized by fast-growing and tall tree species, more than 95 percent of them non-native. This forest had never been tested by a major hurricane and the result, when it finally happened, was unmitigated disaster.

In less than three hours, Hurricane Emily destroyed more than 30 percent of the trees, mainly by uprooting and breakage. Ornamental parks and gardens dominated by the tall-growing casuarinas were especially hard hit, with up to 70 percent blow-down in some



A cahow chick. In 1988, twenty-two more were successfully fledged and set out to sea.

areas. Utility wires were devastated, leaving most of the island without electricity for two weeks. The vulnerability of this new non-native forest to wind damage had been predicted and forewarned against for several years, as local conservationists tried to encourage residents to make more use of native species in their gardens. But the warnings went unheeded until Emily. It only needed the benefit of a field trip to Nonsuch after that to put the point over forcefully, because its smaller-statured native forest survived virtually unscathed. The demand for native tree species for planting gardens and roadsides has since soared.

Indeed the only significant damage to the trees on Nonsuch Island occurred where I had earlier made some now-obvious mistakes in the habitat placement in my plantings. For example, I had overplanted with the coastal seagrapes, placing several of them too far inland from their natural coastal niche, but I had been reluctant to remove them artificially. Every one of these seagrape trees was blown down by Emily, giving me the opportunity to replant the correct species for that niche, which in this case was the cedar. Cedar was the pioneer tree of fresh blow-down or fire-damaged sites in precolonial Bermuda anyway, so I was merely emulating a natural process and edging my way towards a more genuine recreation of the past.

Emily began to provide some real character to the maturing forest by enhancing the wind-sheared and gnarled appearance of the trees, and by partly uprooting some palmettos, which will now record a pronounced bend in their trunks as they continue to grow. And there was a further lesson. I had often pondered how the cahows could have excavated their burrows into the root-matted soil under Bermuda's precolonial forest, because the soil on Nonsuch had remained hard-packed despite the shallow burrowing efforts of the landcrabs. But in a few moments of extreme violence, Emily had slightly uprooted a number of trees, lifting the root mats to create ready-made underground cavities ideal as nesting places.

This brings me back full circle to the cahow itself, that incredible symbol of survival and hope, which inspired the Living Museum project in the first place. Out on the offshore islets, the cahows' fortunes had begun to turn around. This resulted in part from the baffler-induced increase in productivity of the early 1960s which was beginning to be reflected eight to ten years later, as those extra chicks returned to breed. The battle to ban the use of DDT in the U.S. and Canada had finally been won and the breeding success of the affected species was gradually beginning to improve.

In the eighties the cahows experienced a further surge of population increase. By 1987, the population had doubled to 42 pairs. It was even resilient enough by then to absorb the loss of five sub-adult birds, killed by a vagrant snowy owl from the Arctic.

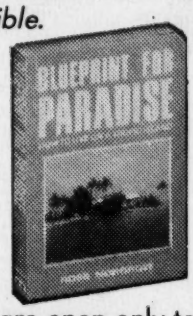
Throughout the sixties and seventies I would often walk down to the South Point on Nonsuch Island at the end of a hard day's work, hoping just once to be lucky enough to see or hear a cahow from there, without having to take a boat to the smaller islets. It finally happened one stormy night about 1982 and I have never been disappointed since. Indeed, I can now on occasion sit in comfort on the porch of the Nonsuch warden's residence and listen to the eerie calls of cahows out over the bay. I still don't know whether my dream of seeing them colonize under the island's restored native forest will be realized in my lifetime, but I might have good reason for cautious optimism — were it not for what is happening to the rest of my homeland across the other side of the harbour. ■

Blueprint for Paradise

Assuming that isolation is an asset, the drawbacks to living on a small tropical island are few but ample: ferocious hurricanes, which can skim off all surface growth (including man-made structures), and scant potable water. You'll also have the minor challenges of building your own shelter and growing your own food.

These hurdles are realistically addressed in this incredibly detailed book, along with practical matters such as how to design an appropriate house, what kind of cement to use, how to set up solar electricity, how to choose an island, and even how to buy one. Robinson Crusoe would be impressed.

The talkative author, a tropical-island junkie, accurately reveals the difficulty of his lifestyle, and thus makes the romance of an oceanic homestead all the more attractive and feasible. —*Kevin Kelly*



Blueprint for Paradise
(How to Live on a Tropic Island)
Ross Norgrove
1983; 208 pp.

$14.95
($17.95 postpaid) from:
Moon Publications
722 Wall Street
Chico, CA 95928
916/345-5413
or Whole Earth Access

•

Some places are open only to people with private incomes, who, as has been mentioned, bring outside funds to the group. It is usually not possible to immigrate to an island or island group and compete with locals on the job market, unless you have a skill the place can use. It is often possible to start a small business, however.

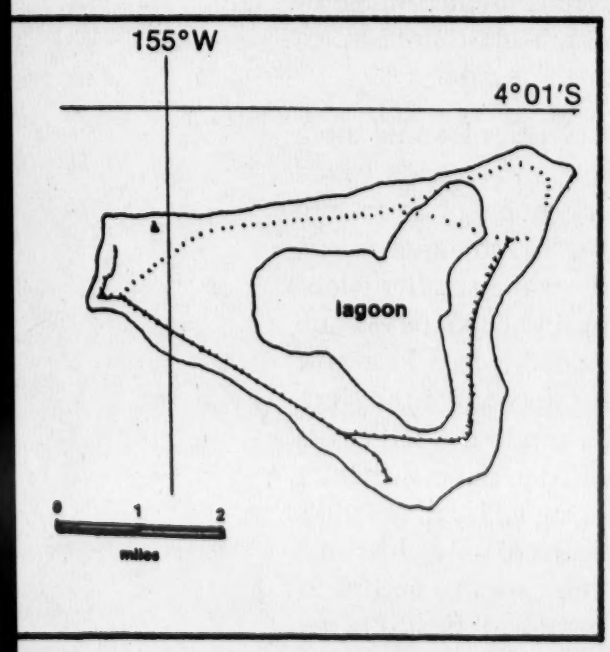
•

Before we discuss the proportions of a strong cement mix, it might be well to draw attention to the fact that if salt water is used instead of fresh water, the mix loses 20 percent of its strength. Also, the rebars (reinforcing steel rods) will, in time, rust and burst the concrete. Finally, concrete mixed with salt water sweats continuously. There are some 17th-century ruins at estate Judith's Fancy on the island of St. Croix that *still sweat salt* on days of high humidity.

•

Hurricane incidence is, in my opinion, one of the most important factors to consider when (a) choosing the geographic location of an island to settle on and (b) building an island home. There are very few inhabitants of tropic islands who haven't experienced a hurricane scare from time to time. These frights are something we can well do without, but for a lot of tropic island dwellers (including us), they are accepted as part of the game.

Top: **Mixing and carrying buckets of concrete to empty into a 55-gallon drum, which is being used as a form for a dock support. The little boat in the foreground carried over 400 tons of rock to build the house.**
Center: **The finished deck.**
Bottom: **All stores and household goods brought to this category 3 island must be loaded here and carried up the path to the house.**



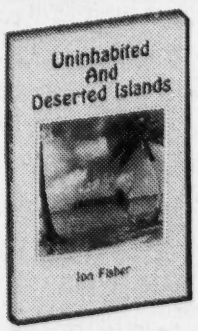
Malden Island.

Uninhabited And Deserted Islands

My guess is that there are probably good reasons why the hundred islands catalogued here are deserted. But who knows? Maybe you have a scheme or two that can make one into home. —*Kevin Kelly*

•

Malden. Malden is 240 miles south of the equator at 4° south, 155° west, about 430 miles southeast of Christmas Island. It is a triangular, flat, coral island, on a reef measuring 5 miles by 4 miles, which encloses a large lagoon. It is a barren place where only stunted vegetation grows. But early European visitors saw stone faced platforms and graves which indicate that Polynesians lived there long ago. From about 1849, guano deposits were worked by Australians for 70 years. The island has been unused and unoccupied since 1927. More recently some notice was given to the island in connection with the British atomic and hydrogen bomb tests on Christmas Island during the period 1956 to 1962.



Uninhabited and Deserted Islands
Jon Fisher
1983; 110 pp.
$7.95
($10.95 postpaid) from:
Loompanics Unlimited
P. O. Box 1197
Port Townsend, WA 98368
or Whole Earth Access

Real Goods

*One of our favorite purveyors of alternative-energy stuff is back, complete with their fat (the fattest anywhere), annotated catalog dubbed **Alternative Energy Sourcebook.** "Sourcebook" refers to the basic education presented along with the merchandise — a valuable service for a customer without enough knowledge to make a good choice of equipment. The company also publishes **Real Goods News**, with sale prices, updates to the **Sourcebook**, and letters from users in the field. That feedback brings new meaning to the term "real" in the company name. I've bought lots of items from these folks. No complaints. Quite the reverse, in fact; this store is a real gem.* —J. Baldwin

Alternative Energy Sourcebook

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707/468-9214

Christmas Tree Lights = Car Interior Lights

We were extremely pleased with the 35 light string 12 Volt Christmas tree lights that we imported from Taiwan this last fall. We discovered by accident while testing out the lights in a car that they make an incrediby exciting addition to the interior of any car. You can simply string the lights around the interior of the car over the windows with electrical tape and plug them into the cigarette lighter. The effect at night is astounding. It wasn't long before our entire staff had cars laden with lights! Nancy was driving her Cadillac through downtown Ukiah just before Christmas with two strings of 12 V lights encircling her windows, when she got sirened off the street by THREE highway patrolmen. After 15 minutes of pouring through copious code sections in their Motor Vehicle primers and several radio phone calls later to enforcement central, they had to let her go because they couldn't figure out where interior lights were illegal in the California code!!

We're discounting these lights from $19.00 to $9.00 for the off season.

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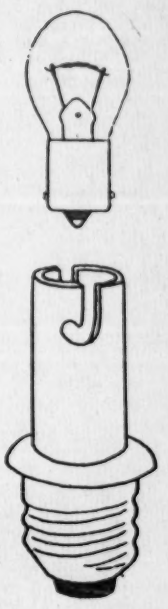
Its been annoying for alot of us in the past having to use inverters to power answering machines which may never come on or only come on several times a day. We've converted a line of top quality answering machines from Panasonic to end this dilemma forever. The machines will function on 110V AC or 12V DC simply by switching the power cord!

Prices as marked; please specify if you need 12 volt power cord.

EDISON SOCKET TO HIGH INTENSITY BULB ADAPTER



Believe it or not this is one of the fastest selling items in the entire catalog. It adapts a standard edison base to an auto brake light type bulb. The bulbs are available at your local auto parts store or in the lighting section of this Sourcebook. Available in single (model 2003) bayonet and double bayonet (M-431) base.

Shipping Wt. 1/4# Price 5.00
Specify either 2003 (single bayonet
or M-431 (double bayonet)
I use these in my girls' room with standard AC fixtures. They provide a great light for bedtime stories, are extremely easy to install, and look great.

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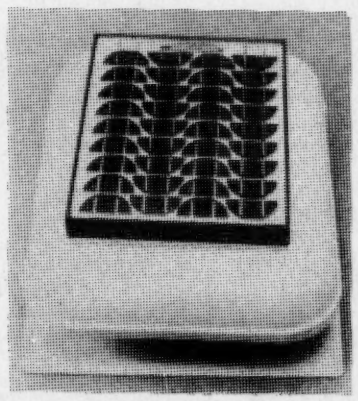

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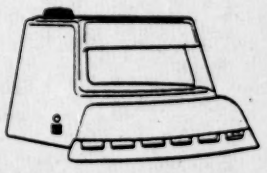

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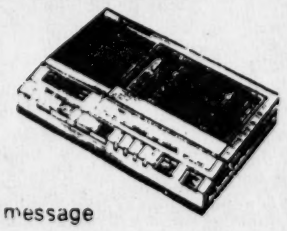

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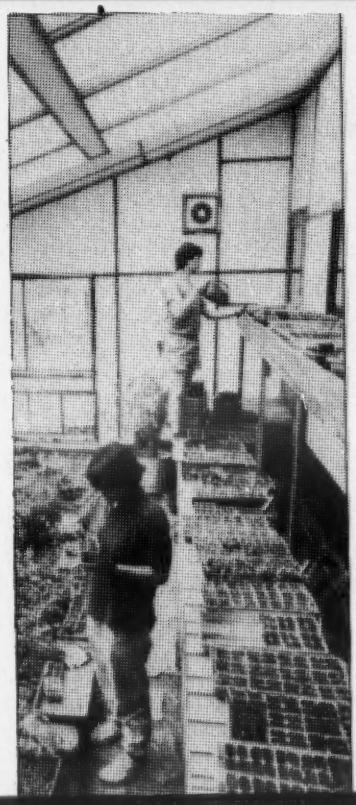
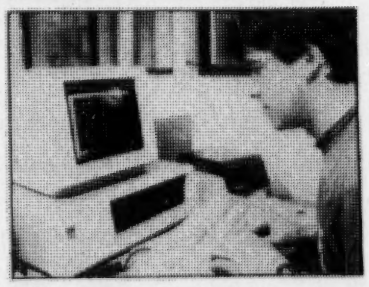
The Meadowcreek Project

*It is with considerable chagrin that **WER** confesses inadvertent tardiness in reporting this lively experiment. (Our physically scattered editors each assumed that another had already done it.) In some respects, Meadowcreek is like the New Alchemy Institute; a demonstration of ecologically sound living technique. Unlike New Alchemy, the crew actually lives there, along with apprentices, conference participants, and visitors, totally immersed in what's going on. (The Alkies prefer to live imbedded in the local community. Hard to say which works best.) Meadowcreek's principal thrust is teaching. The 300-acre working farm together with a conference center encourages a high degree of theoretical discussion tempered by hands-on practice. A good way to learn. The best way to learn, probably. The project has earned an enviable reputation for inspirational education.*
—J. Baldwin





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THE DISPOSABLE DIAPER MYTH

OUT OF SIGHT, OUT OF MIND

BY CARL LEHRBURGER WITH RACHEL SNYDER

AN ENTIRE GENERATION is growing up believing that the term "disposable diaper" is redundant: There's only one thing you put on babies' bottoms. They're plastic, you get them in huge bags and boxes at the grocery store or the convenience store, and you fold them up and toss them in the trash when they're dirty. The product name itself is a misnomer, testament to the power of Madison Avenue and to our own Freudian neuroses surrounding our bodies and our wastes. For Huggies and Pampers and Luvs are not "disposable" at all. We throw about 18 billion of them away each year into trash cans and bags, believing they've gone to some magic place where they will safely disappear. The truth is, most of the plastic-lined "disposables" end up in landfills. There they sit, tightly wrapped bundles of urine and feces that partially and slowly decompose only over many decades. What started out as a marketer's dream of drier,

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Self-introduction: Carl Lehrburger manages and develops recycling programs for Energy Answers Corporation, an Albany, New York-based resource recovery company. He has completed an independent research project on diapers from which much of the material in this article is derived. The resulting publication, "Diapers: A Review of Solid Waste and Public Policy Issues," is available for $10 U.S. (in the U.S. and Canada; $11 foreign) from the author, P. O. Box 580, Sheffield, MA 01257.

Rachel Snyder is a free-lance writer. Married, Carl and Rachel live with their 2½-year-old son, Ethan, in Sheffield, Massachusetts.

happier, more comfortable babies has become a solid-waste nightmare of squandered material resources, skyrocketing economics, and a growing health hazard, set against the backdrop of dwindling landfill capacity in a country driven by consumption.

The mythology surrounding contemporary diapering is a direct descendant of the modern-day waste ethic, whose roots are generally seen as economic. With profits based on sales, manufacturers have a built-in incentive to foster planned obsolescence. And so it is with diapers. The pure and honorable cotton diaper represents approximately 10 percent of the U.S. diaper market — even though it has a viable life of 80 to 200 uses. Capturing the other 90 percent of market share is, of course, the single-use, throw-away diaper.

Hidden Costs, Hidden Hazards

The sheer numbers of diapers being bought, used, and disposed of in our trash are mind-boggling. Industry statistics indicate that as many as 18 billion disposable diapers will be used in the U.S. this year[1] — the end products of a market valued at more than $3 billion. Chalk up more than half of that market to Proctor & Gamble, maker of Pampers and Luvs; 30 percent to Kimberley-Clark's Huggies; and the rest to various generic or "house" brands. It's easy to see how the numbers add up. In the midst of a baby boomers' baby boom, 98 percent of all households using diapers use some disposables. And, as many parents know, a child can run through 8,000 to 10,000 diapers before becoming fully toilet trained.[2]

The forerunner to today's single-use diaper dates back to materials-scarce Sweden after World War II, where a two-piece diaper with a throw-away paper liner was designed. Not until decades later did U.S. industry introduce a single-use diaper — this, too, with an inner absorbent liner designed to be torn out and flushed down the toilet.[3] Subsequent U.S. products combined the outer plastic portion and inner absorbent liner in a design that is at the root of many of today's diaper-disposal headaches.

Today's new and improved single-use diaper is made of an outer layer of waterproof polyethylene plastic. Sandwiched between the plastic and a water-repellent liner is a thick layer of an absorbent, cotton-like material made from wood pulp. A super-absorbent polymer that turns to gel when the baby urinates is embedded into the wood pulp of most U.S. single-use diapers.

Once they are used, roughly 90 percent to 95 percent of the 18 billion feces- and urine-filled disposable diapers enter the household trash stream and ultimately end up in landfills,[4] creating an immediate public health hazard. Leachate containing viruses from human feces (including live vaccines from routine childhood immunizations) can leak into the earth and pollute underground water supplies.[5] [6] In addition to the potential of groundwater contamination, airborne viruses carried by flies and other insects contribute to an unhealthy and unsanitary situation. These viruses could include Hepatitus A, Norwalk and Rota Virus.[7]

Although modern, single-use diaper packaging recommends rinsing feces in the toilet, this is impractical and is in fact discouraged by the one-piece diaper design, which does not allow the diaper to be torn apart easily. In addition, rinsing the tremendously absorptive, single-use diaper in the toilet produces a very full, very heavy, very wet diaper. For these and other reasons, it is doubtful that any more than 10 percent of parents actually rinse out single-use diapers as a matter of course.

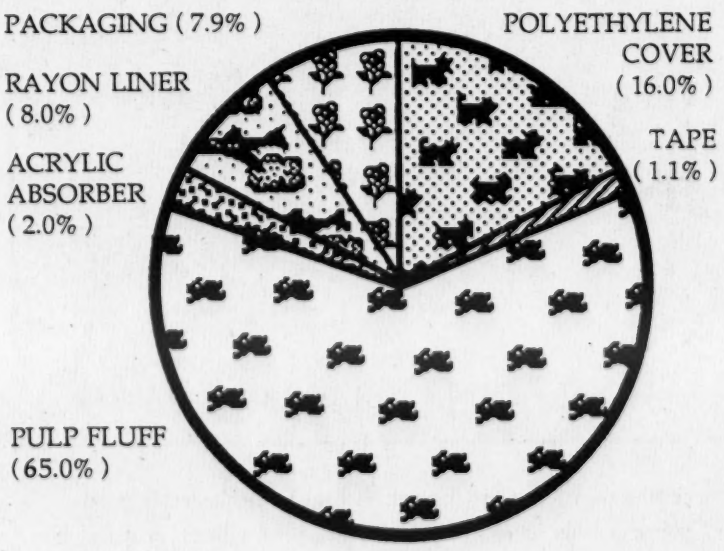
This unsanitary practice of commingling untreated sewage and solid waste in landfills — of dumping raw sewage directly into the environment — should raise eyebrows among more than those whose job it is to oversee the public health.

Material waste is yet another consequence of reliance on single-use diapers. From the time a single-use diaper is put on a baby, it may have a useful life of a few hours *at most*. Since there is no other application of the single-use diaper, use of this product in the U.S. alone wastes nearly 100,000 tons of plastic[8] and 800,000 tons of pulp derived from trees.[9]

Add to these material losses the cost of collection and disposal. With the average U.S. landfill tipping fee about $27 per ton of material[10] (some landfills are over $100 per ton), and the average transportation cost to landfills about $48 per ton,[11] we pay an average of $75 per ton or $350

TYPICAL DISPOSABLE DIAPER

MATERIAL ANALYSIS



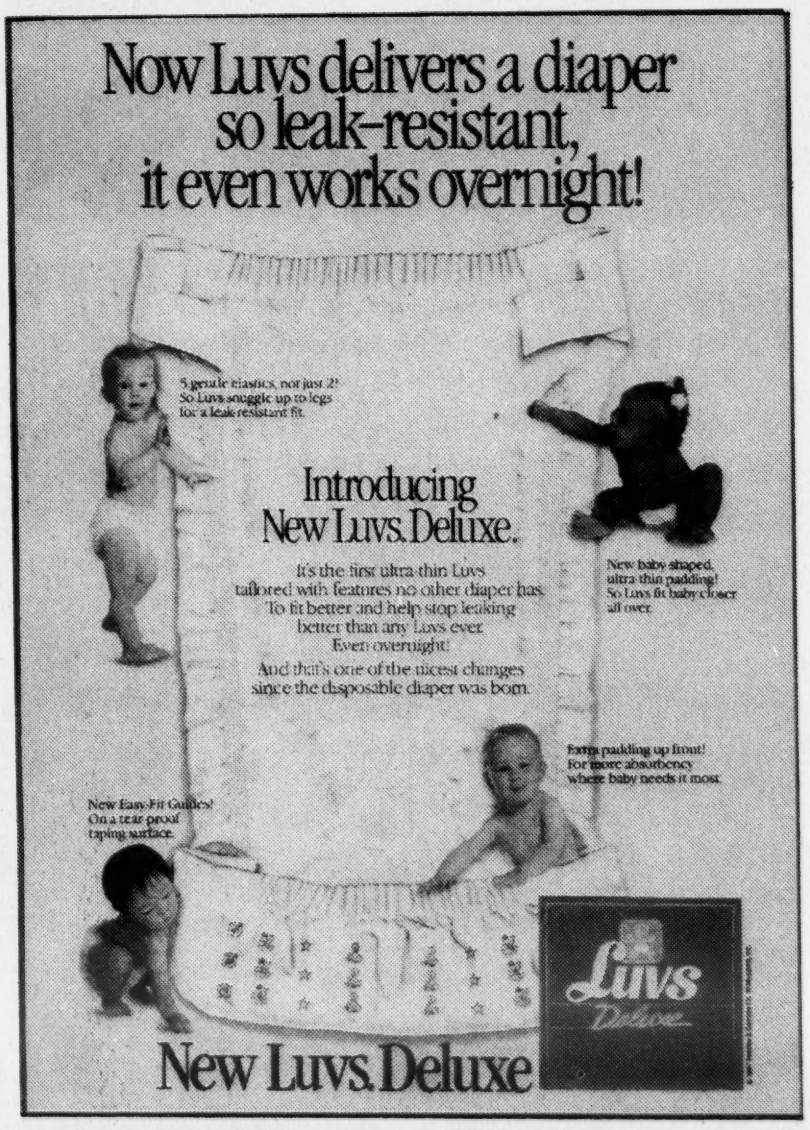
million annually in the U.S. to get rid of single-use diapers! For every consumer dollar spent on so-called disposable diapers, an additional, hidden cost of $ .10 on average goes to pay for disposal.

Few quantitative studies are available that provide precise numbers on the amount of diapers and fecal matter that end up in landfills. However, assuming that approximately 18 billion diapers are sold each year, and that over 90 percent of these end up at landfills, this translates into more than 4,275,000 tons of disposable diapers trucked to landfills each year. Add the remaining 10 percent that end up in resource recovery plants for a total of 4,500,000 tons of single-use diapers thrown away this year.

To obtain the percentage of U.S. solid waste occupied by disposable diapers, begin with the assumption that the average American generates 1,000 pounds of solid waste each year. This is equivalent to 112 million tons of waste annually from household and some commercial sources, not including tires and yard waste.[12] Assuming that the average used diaper weighs one-half pound when thrown away (author's personal conclusion), 4 percent of the total U.S. household solid waste stream is composed of single-use diapers.

Since each community's solid waste stream differs, extrapolating to your own community may prove difficult; a scientific sampling could provide exact information. Differences in location, socioeconomic make-up, seasonal fluctuations, and other factors will yield diverse variations from one community to the next. It should be noted, too, that basing waste composition upon weight as opposed to volume may also prove misleading. However, since tipping fees are most frequently calculated by weight, this has become a generally accepted practice.

The above notwithstanding, the estimate that disposable diapers make up 4 percent of household solid waste, and 3 percent of the municipal solid waste stream, is sure to catch most solid waste managers by surprise.



Current state-of-the-art diaper. A highly engineered product using sophisticated plastics, adhesives, fibers, and ink.

Burn 'Em, Flush 'Em, Compost 'Em

Although most single-use diapers end up in landfills, a growing trend in the waste management industry, particularly in the heavily populated northeastern U.S., is the construction of waste-to-energy plants. These plants burn solid waste and produce electricity (mass-incinerators) or separate out a prepared fuel (RDF — refuse-derived fuel). About 75 plants currently handle 7 percent of the total U.S. solid waste flow;[13] another 60-plus are under construction. Some industry analysts predict that this will grow to 40 percent by the end of the century,[14] although these estimates are considered optimistic by the author.

The development of mass-burn plants has been the source of heated discussion between environmentalists, who favor recycling and reusing materials, and proponents of waste-to-energy plants. In the case of single-use diapers, however, burning in resource recovery plants appears to pose less of a societal problem than does dumping in landfills. Energy is obtained from the combustion, and the high temperatures destroy any dangerous viruses or bacteria. The diapers are reduced to ash (about 6 percent of the original weight becomes ash[15]), which is then landfilled.

Despite reducing the volume and eliminating the disease potential of single-use diapers, burning any waste will contribute to air pollution. Additionally, the value of the material used as fuel in mass incinerators (4-5 cents per pound) is one-eighth the value of the materials if reused.[16] As the trend toward building mass-incinerators and RDF facilities grows, so grows the volume of disposable diapers that end up as electricity, fumes, waste heat and ash. Although burning disposable diapers in mass-incinerators may destroy dangerous pathogens, this solution is hardly optimum.

A growing emphasis is being placed on recycling solid waste. States such as New York, Massachusetts, and Connecticut have targeted 25-percent recycling goals. New Jersey, California and Oregon already have aggressive recycling programs in place. As the recycling of household glass, cans, plastic, and newspapers increases, the percentage of single-use diapers in the solid waste stream will also increase. For example, if single-use diapers make up 3 percent of the municipal solid waste stream today, that percentage will rise to 4 percent once a city or state achieves a recycling goal of 25 percent of solid waste.[17]

The fact is, single-use diapers are specifically designed to be thrown away. Recycling or reusing them is problematic if not impossible, because of the difficulty in separating the product's plastic materials from the cellulose (mostly wood pulp).

In another solid waste management scenario, today's single-use diapers could be recycled in an environmentally sound manner by municipal composting. Commercial composting facilities, which have the potential to mix sewage sludge and municipal solid waste (co-composting), operate at high enough temperatures to kill dangerous viruses. The pulp, paper and human feces from diapers biodegrade into compost, while most of the plastic is screened out of the finish material. This plastic may then either be landfilled or used as a fuel for burning in an RDF plant. This process would be enhanced by using biodegradable plastics.

Although composting municipal solid waste is widely practiced in Europe — where over 200 plants are now in operation — it is only recently gaining acceptance in the U.S. Here, construction of large mass-incinerators continues to be the most popular waste disposal technology. Composting of municipal solid waste and sewage sludge is expected to become increasingly popular in the U.S., as it represents a less capital-intensive, simpler and more ecological approach to solid waste management. However, unless or until there is a drastic change in public policy or the direction of waste management technology in the conceivable future, most disposable diapers will be landfilled or burned.

The most logical and environmental approach to disposal of a single-use diaper product is flushing. The sewage waste stream is already equipped to handle urine, feces, and specific types of paper. Sludge recovered from sewage is suitable for recycling through land treatment, assuming that heavy metals from industry have not entered the sewage waste stream. Although present-day single-use diapers are not suitable for flushing down toilets, a new materials configuration could provide a single-use diaper liner that flushes safely. This would require that parents use a traditional nylon, cotton or wool diaper cover in conjunction with single-use diapers.

Although nearly 100 percent of single-use diapers could theoretically be eliminated from landfill disposal by a flushable product, diaper manufacturers have ignored the solid waste problems created by single-use diapers. They have instead focussed on integrating super-absorbents (slurpers) into the diaper and adding more materials. Interestingly, the capabilities of some of these super absorbing materials can just as easily enhance prospects for a flushable diaper option, according to the author's patent review and preliminary field testing. The major barrier to rein-

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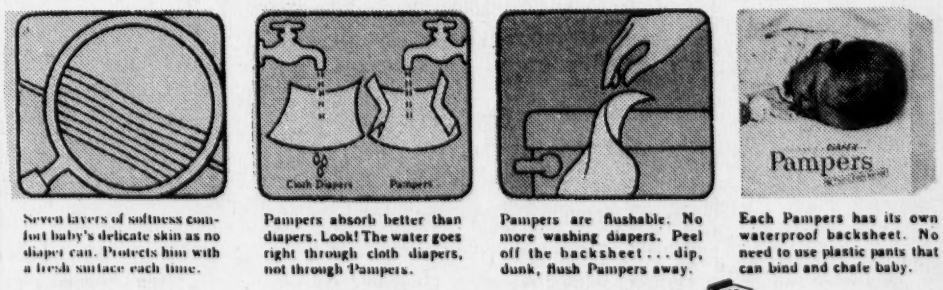

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A 1962 ad for newly introduced disposable diapers. Note that these Pampers had flushable inner liners, an "advance" that was later given up. Also note the need for pinning the diaper together — no adhesive tabs yet.

troducing a flushable diaper appears not to be plugged-up sewage lines, but a reduction in profits for manufacturers who would use fewer materials in each diaper.

Growing Options for Conscious Diapering

In an ironic shift, cotton diapers have now become the major "alternative" to single-use diapers. Even though most households with infants have a supply of cloth diapers on hand for clean-up and keeping shoulders clean, cotton diapers continue to lose market share to single-use diapers.

Even though diaper services serve less than 2 percent of families with children under three (author's estimate), the industry is now beginning to experience a turn-around in business. The weekly diaper service picks up soiled, unrinsed diapers, professionally launders them, and delivers clean diapers to the home. Unfortunately, they are often not available in rural or small-town areas. Once considered an elitist luxury for an advantaged few, diaper services can today be a necessary overhead item for dual-career couples with small children.

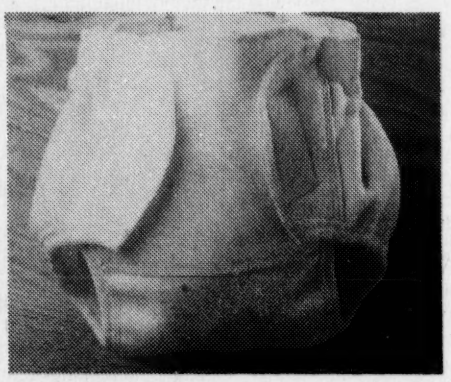
At anywhere from $9 to $12 per week, diaper services still make more economic sense when compared to the $15 that parents spend on single-use diapers — especially when the hidden costs of disposal are factored in. The following analysis does not take into account the value of labor for home washing, which, the authors know from personal experience, can be considerable.

Natural Fiber Diaper Covers *BY RACHEL SNYDER*

ONCE YOU DECIDE TO FOREGO disposable diapers, you're faced with a new dilemma: what to put over cotton diapers to create some sort of barrier between a baby's wet diaper and everything else that lies next to, under, or around it.

When you're looking to let your baby's bottom breathe and to prevent the soggy, hot, air-tight conditions that create and stimulate diaper rash, 100-percent-wool covers are optimum. But there's a catch. Although wool is nature's most absorbent fiber and wicks moisture away from diapers, it just can't offer the waterproofing that single-use diaper manufacturers have led us to believe is every parent's birthright. A wet diaper can lead to a wet diaper cover and to wet clothing, blankets and laps. (You'll find that clothing from countries that aren't overrun with disposables often don't have crotch snaps for easy changing. People who use cotton are accustomed to changing baby's entire outfit along with each diaper.)

In over two years of diapering, we put our son in the pure wool covers as well as cotton, nylon, and cotton-shell-with-vinyl-waterproof-layer versions — all in a velcro wrap design that eliminates the need for diaper pins or clips. He never had diaper rash and we used the barest minimum of lotions, powders or creams, even though we filled in with single-use, "disposable" diapers when traveling and occasionally when dryness made a truly significant difference to everyone's well-being.



The Classic Biobottom

Creamy white wool, full cut for most coverage. Velcro-like tabs eliminate pins, making fitting easy. All edges bound for smoothness. Soft cuffs hug legs without leaving rings.

- 1082 Classic Biobottom $15.00

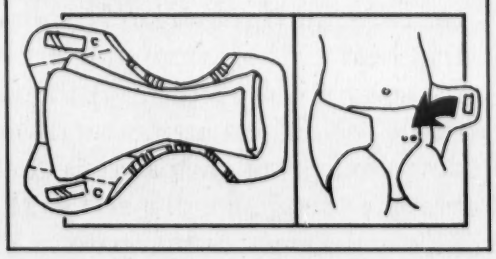
Most of these natural fiber covers come from California-based companies. But in New England, where winters can be long and damp and dark, the recommended air-drying of the wool covers becomes more than a minor problem. On more than one occasion, we tossed them in the dryer and suffered the resultant shrinkage and shortened life. Overall, laundry became a bit more complicated than we would have liked. The natural diaper covers can't be washed in the "heavy-duty" detergents that mud and toddlers often need. Some of the covers can only be washed in soap like Ivory; others specifically recommend against Ivory and instead suggest mild detergents. And because they need warm water, you can't wash the wool covers in with your diapers, which need hot. So if you're using several different styles of covers at once (which we were), you end up having to do lots of inefficient, smaller loads of laundry and using more cleaning products than you might like.

There's a big psychological hurdle in spending between $10 and $13 for a wool or cotton diaper cover when nylon and other synthetics are at least half the cost. But na-

How to Biobottom:

Here's how to turn a diaper into one beautiful Biobottom, with no pins and in almost no time. It makes changing diapers quite a change.

- Fold standard cloth diaper in thirds. Or line Biobottom with our custom diaper.
- Place diaper on Biobottom, keep all edges inside.
- Fold Biobottom around baby and adjust velcro to fit.
- Change cover just when it begins to feel damp, about every four or five diaper changes.
- Use with any cotton diaper, diaper service diapers, or our custom shaped flannel diapers and liners.

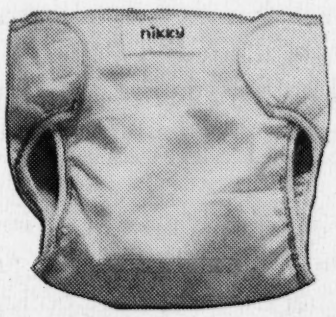


In addition to the economic advantages cotton diapers have over single-use diapers, they are reused from 80 to 200 times each. Plus, the environmental and economic benefits of keeping feces- and urine-filled diapers out of the solid waste stream are substantial, and should not be overlooked by policymakers seeking ways to reduce the growing solid waste burden.

Although single-use diaper manufacturers have succeeded in convincing the public that diaper rashes are a normal, expected part of early childhood, independent tests and the author's own evaluation have demonstrated that rashes are far less frequent with cotton diapers.[18] Although certainly more ecological than single-use diapers, cotton diapers are not perfect, either; the larger perspective is marred by the significant laundering requirements of large quantities of water, energy, and detergents. As well, home laundering is the least sanitary diapering option when compared to single-use diapers or professional diaper services.

As noted above, the greatest promise for an environmentally sound and cost-effective diapering alternative is the development of a flushable diaper. Composting presents the best opportunity to manage current single-use diaper waste in an environmentally and economically effective manner, but is dependent on increased composting of municipal solid waste during the coming decade.

Outright limitations on certain products are not out of the question, as highlighted in a recent



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100% Wool Felt
Made from pure lamb's wool, this Nikky is baby soft, thick and super absorbent. Allows complete breathability and is non-irritating and non-allergenic. Inner-leg cuffs hold diapers snug preventing leakage. Newborn style is modified for cord healing. Ivory color.

Newborn . . . $9.75
A, B, C, D, E . . . $12.00 each or $11.50 for 3 or more
—Baby Bunz

tural fibers take well to repeated washings and can be recycled among family and friends. Like cotton diapers, the covers are the difference between an investment and monthly overhead. One firm's brochure suggests that the wool covers with cotton diapers can save nearly $1,000 over disposables during the child's diapering lifetime. Another plus — your baby doesn't sound like a bag of trash when he or she scurries across the floor!

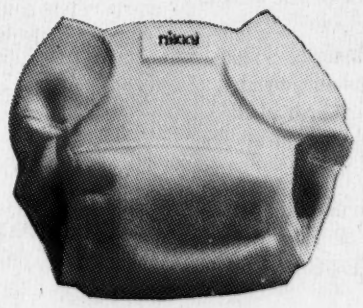
The best place to learn about all types of natural-fiber diapering products is *Mothering* magazine (P. O. Box 1690, Santa Fe, NM 87504), published quarterly for $15 a year. Two of their largest advertisers, both of whom provide wonderful mail-order service and loads of compassionate diapering info by phone, are:

Biobottoms (catalog $1), P. O. Box 6009/3820 Bodega Avenue, Petaluma, CA 94953; 707/778-7945 for MC and VISA orders (M-F, 8 a.m.-6 p.m. PST; Sat., 9 a.m.-4 p.m.).

The Biobottoms catalog offers five diaper covers, one cotton diaper liner, and two types of cotton diapers, along with other cotton clothing for kids of all ages.

Baby Bunz & Co. (catalog $1), P. O. Box 1717, Sebastopol, CA 95473; 707/829-5347 for MC and VISA orders (M-F, 9 a.m.-5 p.m. PST).

The Baby Bunz brochure offers five diaper covers, a 100-percent-cotton diaper, mini-diapers for double diapering, and Dovetails, a biodegradable disposable diaper liner, along with other natural baby products. ■



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Basic Nikky
This least expensive Nikky has a 100% Cotton outer shell with vinyl waterproof layer. Does not have inner-mesh or inner-leg cuffs. Durable and superior to nylon or plastic pants. White with rainbow edging. Not available in NB size.

A, B, C, D, E . . . $5.75
—Baby Bunz

R. Duck Company

Diapering baby bottoms with cloth diapers may be a diminishing custom, but it is still done. Which means there's still a need for some type of protective outer garment. Biobottoms and Baby Bunz's Nikkys, in cotton or wool, offer a nice, natural cover, but are expensive. I've found the R. Duck Company offers two good alternatives: Rubber Duckies and Wrap Ups. Made out of nylon, they offer a protective shield between baby's wet diaper and outer garments. Available in velcro wrap (with a nylon mesh liner) or pull-on, both styles dry quickly. And if white diapers bore you, these vibrant colors will add a splash of life to junior's britches. *—Cindy Fugett*

Rubber Duckies: $3.50 ea. (3/$10, 6/$18); **Wrap Ups: $4.50** ea. (3/$13, 6/$24). Catalog **free** from R. Duck Company, 953 W. Carrillo Street, Santa Barbara, CA 93101; 800/422-DUCK.

solid-waste survey of New Hampshire municipal officials. In that survey, 68 percent of respondents indicated they would favor legislative limits or bans on some plastic products.[19] Twenty-one states and many European countries have already introduced legislation to limit or ban plastic packaging waste.

Alternative diapering approaches have not been taken seriously because few recognize the health and solid waste problems created by single-use diapers going to landfills. It also has proven difficult to confront the waste ethic successfully in the U.S. when such a disproportionate value is placed on "convenience" by consumers and marketers. Few environmentalists, cotton diaper services, or health proponents can be heard above the public relations and marketing clout exercised by a Proctor & Gamble or Kimberly-Clark.

But as difficult as it is, we must confront the waste ethic. We have now reached the point where it has become unacceptable to continue to landfill over 16 billion diapers each year. The decreasing availability of landfill space and the increasing and hidden costs of single-use diapers are likely to provide the societal pressure to change diapering modes.

There *are* alternatives to sending nearly 10,000 plastic-and-pulp diapers per child to the landfill. Cotton diapers, whether washed at home or by a diaper service, admittedly may require lifestyle and diapering mode changes by many parents and caregivers. Conscious diapering, like conscious living, requires parents and others to think about what they are putting on their children's bodies and where it will ultimately go.

Economic policy should provide incentives to diaper services, which create local jobs as well as diminish the need to landfill single-use diapers. Relying on the same "carrot" approach, incentives for diaper manufacturers to develop a flushable option certainly are more desirable than a ban on single-use diapers from landfills. Incentives to daycare facilities, hospitals and institutions to switch to reusable diapers, gowns and bedding would complement the proven economic advantages of reuse over single-use products. And finally, eliminating landfills as our primary mode of "disposal" and replacing them with resource conservation, recycling and composting, will require a shift in the waste management industry. There *are* alternatives to disposable products, but they require conscious — often demanding — choices by individuals, industry and government.

The single-use diaper has gotten a free ride for too long. It is time that parents, health care providers, solid waste managers and public policymakers begin to consider seriously the problems created by, and the alternatives to, the single-use diaper. It's time for a change! ■

Footnotes

1. "Proctor & Gamble — Is Smaller Better?," by Francis J. Bouda, *Nonwovens Industry*, 1/86, p. 14.

2. *How To Bring Your Child Up Without Spending A Fortune*, Benning, 1975, p. 238.

3. "Preliminary Study of the Environmental Impacts from Processing and Disposal of Diapers," M. A. Shapiro, S. Rattien, J. Bern, Graduate School of Public Health, University of Pittsburgh. 7/71.

4. According to John D. Bucholz, about 5 percent of the waste generated in the U.S. is processed in resource recovery plants, as quoted in "Waste-to-energy: Analyzing the Market," *World Waste Magazine* 6/86. The "Characterization of Municipal Solid Waste in the United States, 1960 to 2000" by Franklin Associates Ltd., 7/86, Prairie Village, Kansas, places the figure closer to 7 percent.

5. "Examination of the Penetration of Enteric Viruses in Soils Under Simulated Conditions in the Laboratory," P. H. Jorgenson, *Water Science Technology Magazine*, Vol. 17, Bilthoven, p. 198-199, 1985.

6. "Soiled Disposable Diapers: A Potential Source Of Concern," M. L. Peterson, *American Journal of Public Health*, September 1974, Vol. 64, No. 9, p. 912.

7. Telephone interview with Dr. Charles P. Gerba, Department of Microbiology, University of Arizona.

8. Polyethylene film used in disposable diapers (U.S.): derived from *Canadian Plastics Magazine* — 5/82, with a base figure of 131 million pounds for 1983 with a 4.8-percent growth rate. Consumption of hot-melt adhesive for diapers in 1987 was 34.4 million pounds (*Frost & Sullivan News American Market*, 11/87).

9. Consumption of fluff pulp in disposable (U.S.) derived from *Paper Magazine* — 11/18/85, p. 29, with a base figure of 667,000 metric tons used in 1982 at a 2.8-percent growth rate. Does not include pulp for packaging.

10. Author's estimate based on published surveys of landfill tipping fees and estimated increasing cost of 10 percent per year.

11. Conservative estimate of consultant to the author, Mr. Dave Hansen, Vice President, Smith & Mahoney P.C. (Albany, New York), based upon analysis of landfill transportation costs undertaken for several clients.

12. Author's projection based on extrapolation of gross product tonnage discarded into the municipal waste stream, less yard waste and tires, which equal 108 million tons for 1984. At a growth rate of 1.2 percent per year, 112 million tons per year is arrived at. Base tonnages cited from "Characterization of Municipal Solid Waste in the United States, 1960-2000" (see footnote 4).

13. "Waste-to energy: Analyzing The Market," *World Waste Magazine*.

14. Recent statement by Combustion Engineering, Inc., *World Waste Magazine*.

15. Estimate by consultant to author, Mr. Dave Hansen (see footnote 14).

16. Edwin Haffner, President, Hafner Industries, Inc. Presentation at 5th annual New England Resource Recovery Conference, 6/86, Boxboro, Massachusetts.

17. This assumes we are currently recycling 5 percent of municipal solid waste.

18. "A Diaper Rash Survey Among Diaper Service Customers," conducted by Weiss & Associates Marketing Research, Woodland Hills, California, for the National Association of Diaper Services.

19. "Results of the Solid Waste Questionnaire", Committee on Environment and Agriculture, House of Representatives, State of New Hampshire, 1/88.

Curbside Recycling Containers

A number of cities have achieved remarkably high collection rates for recyclable materials by use of a very simple "technology." Their solution is to provide each family with convenient and highly visible curbside containers, and to schedule pickups on a regular weekly basis. Several types of containers have been developed, each of molded plastic. The one that has been tested widely and garners participation percentages between 50 and 85 percent of the community is a stackable container first used in Santa Rosa, California in 1977. The containers come in three bright colors (red, yellow, blue), designating three types of recyclables — newspapers, glass and cans. The system eliminates the need to tie up newspapers; the container will hold a week's worth simply tossed in. Tin and aluminum cans are deposited together in another container, and then magnetically separated during processing. Residents can also combine clear and colored glass in the third container.

The containers increase collection efficiency, lessen pickup litter, and reduce the amount of unwanted refuse mixed in. The brightly colored stacks of containers out by the curbside each week serve as unbeatable advertising for the program, and are self-educating. Moreover they exert clear peer pressure on neighbors to get with it and join in.

The idea of recycling has been recycling through communities for decades. Now the economics are beginning to make it mandatory for the many towns running out of landfill. Beside the reduction of landfill fees, there is the not-insignificant money generated by the gathered materials. For example, revenues generated from the sale of newspaper, bottles and cans collected during the month of December in the San Jose curbside program was $224,000. The costs of pickup will vary with location.

The cost of containers for a town of 30,000 would be only $150,000.

Curbside recycling containers work. The program runs on the only two axioms that every effective recycling program has succeeded on: educate the public, and make it convenient for them. Have your town check out the other towns engaged in this citizen do-gooding.

—Kevin Kelly

Stackable Multi-container Systems: $15/set of 3; **$150,000**/10,000 sets (enough for a small town of 30,000) from 3R Recycling, Box 11217, Santa Rosa, CA 95406; 707/546-5328.

Toward an Ecological Society

One of the pleasures of surviving awhile, as a human kind of sentient being, is that you grow to understand thinkers who once may have seemed baffling or obscure. As I come within hailing distance of forty, I am beginning to comprehend Murray Bookchin and his immense importance for our time. A not insignificant part of that importance is his quality of mind — a rigor, logic, clarity, and evidentiary bent that seems to be vanishing from the race.

Above and beyond, although not apart from his responsible scholarship in their importance, are Bookchin's convictions: his rare and indomitable commitment to anarcho-communism; his wonderful hostility to such banes as bureaucracy and toil, sexism and gerontocracy — hierarchy in general. His ideals are ferocious.

This collection of essays spans the seventies and culminates in "An Open Letter to the Ecology Movement." Dig in. *—Stephanie Mills*

•

A truly free society does not deny selfhood but rather supports it, liberates it, and actualizes it in the belief that everyone is competent to manage society, not merely an "elect" of experts and self-styled men of genius.

•

At what point — and for what reasons — did the generous utopian visions that surfaced in the early nineteenth century lose continuity with later periods that so desperately required their elaboration and fulfillment? The rupture can be dated from the ascendancy of Marxism as a social movement. Largely under the impetus of Marx's class theory, the city ceased to be a matter of serious concern to radical analysts and the notion of community a goal in social reconstruction. Radicalism found an almost exclusive locus in the factory and proletariat. Just as bourgeois urban sociology neglected the work place for the city, so radical social theory neglected the city for the work place.

•

The grave danger here lies in the failure of many idealistic individuals to deal with major social issues on their own terms — to recognize the blatant incompatibilities of goals that remain in deep-seated conflict with each other, goals that cannot possibly coexist without delivering the ecology movement to its worst enemies. . . .

To ask powerless people to regain power over their lives is even more important than to add a complicated, often incomprehensible, and costly solar collector to their houses.

Toward an Ecological Society
Murray Bookchin
1980; 315 pp.
$12.95
($15.20 postpaid) from:
Black Rose Books
3981 Boul. St.-Laurent,
4th Floor
Montreal, Quebec
H2W 1Y5
514/844-4076

or Whole Earth Access

Zen Driving

The subtitle of this book — "Be a Buddha Behind the Wheel of Your Automobile" — prepared me to be skeptical if not openly derisive. To my great surprise, I found that the book closely describes the mindset I've been using for 38 years and a million accident-free miles. And I'm not a student of Zen. Other how-to-drive books are either sappy moral "drive safely and obey the law" drivel, or race technique; useful but tending to encourage aggression. This one is about awareness and clarity.

I have no idea what Zen folks think of this book, but I obviously must recommend it since I drive this way and it seems to work. If the whiz and whoop surrounding your driving makes you mad, sleepy or even dangerous, you might find useful insights here. The author goes so far as to suggest that driving might be the best way to learn Zen. —*J. Baldwin*

•

It's an illusion that the harmony of our roads is maintained by external forces or factors such as road signs, lights, lines, and laws. We come to rely on these external controls, and when something out of the ordinary comes upon us — a broken light, an erratic driver — we frequently become disoriented. Professional driving studies differentiate between what they call drivers who have an "external locus of control" and those with an "internal locus of control." The studies conclude that the latter, who act more independently, are quicker to pick out distinct items embedded in their immediate environment (in other words, their perceptions are sharper) and statistically are better and safer drivers.

Zen Driving
K. T. Berger
1988; 164 pp.
$6.95
($7.95 postpaid) from:
Ballantine Books
400 Hahn Road
Westminster, MD 21157
800/638-6460
or Whole Earth Access

•

A Zen Driving riddle: How long will drivers sit at a red light that is broken?

•

Slip into Something Comfortable
Sit behind the wheel, relax, take a few deep breaths, and realize that all further progress is now in your hands: the vehicle of instruction is the vehicle you're sitting in.

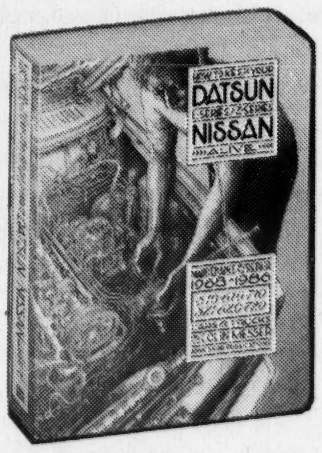
Begin by making a mental note of the fact that you are now in a completely different environment. Become mindful: look around you, acclimate to your surroundings, acknowledge where you are — here, encased in a large cozy machine that for all practical purposes is an extension of yourself. Think of you and your car as one unit. As in fencing, where the foil is an extension of your arm, its tip as sensitive as your fingers, your car becomes a full-body extension of yourself. As you strap on your seat belt you are quite literally *putting on* your car.

How to Keep Your Datsun/Nissan Alive

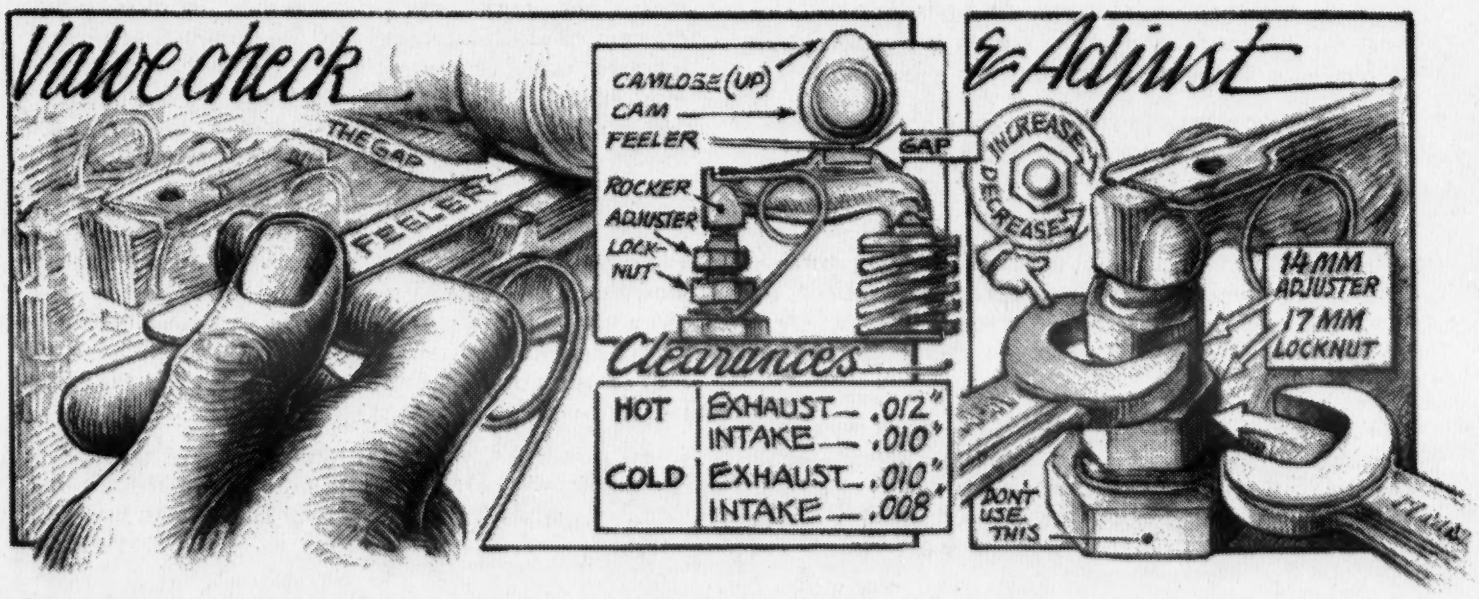
Demystifying automotive complexity has never been done better than by John Muir's famous Idiot Book series that began in 1970 with the original ***How to Keep Your VW Alive****, which has now sold nearly two million copies in three languages. Unless you've recently moved here from Mars you're already familiar with the clear text, excellent illustrations and gentle philosophy that have guided so many people to mastery over their machine, freedom from expensive "experts," and the understanding that technological challenge can not only be mastered, but enjoyed.*

Muir books now cover the VW Rabbit, Honda, Subaru, and a soon-to-be-published volume for Toyota trucks. Right now the new issue is a big Datsun book whose coverage goes from the classic 510 series thru the '82 cars and '86 pickups. The "Z" cars are not specifically dealt with, but all the engine work is covered except fuel injection.

How to Keep Your Datsun/Nissan Alive (1968-1986)
Colin Messer
1987; 547 pp.
$17.95
($19.70 postpaid) from:
John Muir Publications
P. O. Box 613
Santa Fe, NM 87504
505/982-4078
or Whole Earth Access



Colin Messer, the author and longtime mechanic, labored nine years getting this book together, going thru 15 Datsuns of his own plus those of innumerable friends to extract the Essence of Nissan. It's guaranteed to become a Datsun owner's best friend. —*Dick Fugett*

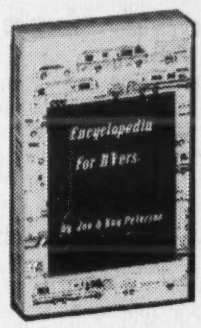


Encyclopedia for RVers

Joe and Kay Peterson exemplify the sort of folks who live on the road. Their previous books, ***Home Is Where You Park It*** *and* ***Survival of the Snowbirds*** *(**EWEC** p. 271), are considered classics by RV nomads. Those books attend to such things as can-you-do-it and what's-it-like and what-are-the-tricks. Read 'em and stash 'em on your bookshelf for later lending to beginners. This book is the one you keep in the glovebox. It's replete with the latest information you need to keep your rig (and yourself) running well. But mostly, it's a sort of Yellow Pages for hardware and information that you'll need for a successful life without a home base. Mail-order pharmacies, message services, parts dealers, museum locations, correspondence schools, free parking spots — just about anything you'll likely need is in here with addresses and phone numbers. Your RV isn't complete without this.*

—J. Baldwin

Encyclopedia for RVers
Joe and Kay Peterson
1988; 192 pp.
$5.95
($6.95 postpaid) from:
Roving Press Publications
Rt. 5, Box 310
Livingston, TX 77351
409/327-8873
or Whole Earth Access



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Foremost Insurance:
5800 Foremost Drive, Southeast
Grand Rapids, MI 49501. (800) 237-2060 or (616) 942-3000. Covers motorhomes and travel trailers with special policy at lower rate for stationary trailers. You purchase special ''trip insurance'' when you move it.

•

FMCA (Family Motor Coach Assn.):
8291 Clough Pike
P. O. Box 44209
Cincinnati, OH 45244. (800) 543-3622 or (513) 474-3622. Free mail forwarding on weekly basis. You pay postage only. No charge for handling and packing supplies. FMCA membership ($25/year) is limited to owners of motorhomes. Also provides a free message service for members.

Camp Coast to Coast
1000 16th Street N.W. Suite #840
Washington, DC 20036. Phone: (202) 293-8000. Must belong to an affiliated membership park to be eligible to join. CCC members may stay at all affiliated parks for $1/night for up to 7 days at a time — or longer at their ''home park.'' Cost of a home park membership ranges from two to seven thousand plus annual membership fees.

•

Some banks give special services. For instance, the Pacific First Federal, Tacoma, Washington has a ''Pay By Phone'' service through which you can pay all of your monthly bills with a single telephone call. You select a special ''call'' number to access your records so others cannot tap into your account. The Pacific First service provides a touch-tone service that operates through a computer for those who have touch tone phones available. This bank also provides an 800 number for in and out of state calls. The service at Pacific First is free with your checking account, but you must maintain a minimum balance.

Car Beautiful

It takes a true picknit to keep a car as nice as the author of this book undoubtedly keeps his. On the other hand, no point in letting your car look like a dog's breakfast; you might want to sell it someday. (Also, a ratty-looking car leads to low respect and consequent ignored maintenance — an expensive luxury.) (Or, even more expensive, New Car Fever.) So here's what you should be doing, taken right down to brand names of the required nostrums and potions, and presented in an amusingly droll, highly subjective tone of voice. In detail. Oh my yes, in detail.

—J. Baldwin

Car Beautiful
Henry Watts
1987; 76 pp.
$7.95
($9.70 postpaid) from:
Loki Publishing Company
849 Gary Avenue
Sunnyvale, CA 94086
408/720-0602
or Whole Earth Access

•

Some people use liquid dishwashing soaps to wash their cars. These are strong detergents and some may be highly alkaline. Washing your car with these is a very bad idea. Strong detergents will remove the wax on your car and may burn (oxidize, I think) the paint. . . . Detergents will clean remarkably well. I have seen industrial tests that indicate that Joy does a superb job, both in terms of doing the cleaning and being willing to be rinsed off with no remaining residue. . . .

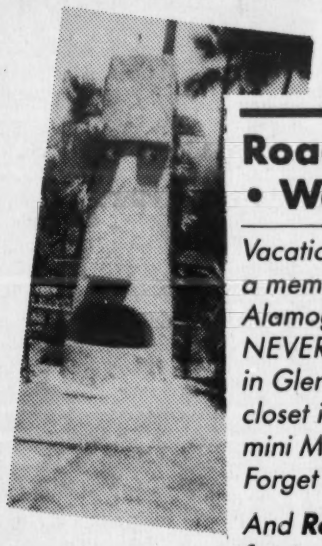
I had a delightful conversation with Dr. Les Legosi, chief chemist for Classic car-care products. His view was that anything would be adequately safe if you were sure that it was only mildly alkaline. He suggested that Woolite and baby shampoo might be OK, but thought that those solutions would be more expensive than a commercial car washing product. He did not believe that, under the normal conditions for washing a car, any of these products would leave a residue, although we must keep in mind that using cold water to wash a car makes it more difficult to get all the soap residues off.

•

Wash very carefully. Whatever you do not find with the soapy mitt you will inevitably find with your drying rag or the wax applicator. This isn't like doing dishes; (Dad, who always washed, claimed that the person drying dishes was expected to remove about a third of the food). As you get good at washing the car you can take pride in drying the car and ending up with wet but perfectly clean diapers that you used for drying. This does take some skill. Dirt is a lot easier to see when it is dry than when you are in the middle of doing the washing.

•

Another approach with decals is a heat gun or hair dryer. Most glues will soften with heat, and you can lift the decal right off (use a rag so you don't toast your pinkies!). Be aware, however, that you should not get any glass or painted surface excessively hot. In the case of the glass you will risk drying out and/or cooking the nearby rubber window seals and any body or interior parts in the neighborhood. If the decal is on paint (which is absurd, but it happens) you can probably get it off. Try using Prepsol or Acme 99-Klix before you reach for the heat gun or hair dryer. Do not use lacquer thinner to remove decals from paint unless you are also going to paint the car this cleaning session. The heated decal should yield before the paint is too hot, but be very careful.



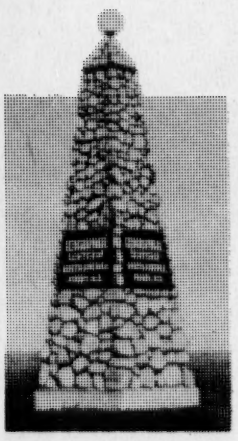
Roadside America
• Weird, Wonderful America

Vacationers of America, did you know that you can visit a memorial cairn at Ground Zero Numero Uno near Alamogordo, NM? See conclusive proof that evolution NEVER HAPPENED at the Creation Evidences Museum in Glen Rose, TX? Gaze upon the wonders of Liberace's closet in Las Vegas, NV? Blow away dinosaurs with your mini M-16 at the Prehistoric Forest in Marblehead, OH? Forget Disneyland! This is the real America!

*And **Roadside America** is your guide. This book is not for people who call themselves "travelers" and buy their vacation wardrobes at Banana Republic. This is a travel guide of the tourists, by the tourists, and for the tourists. The only museums **Roadside America** is interested in are the kind that feature wax dummies in bloody Indian-massacre scenes under ultraviolet light. If you have the right attitude, you will find that places you once thought to be irredeemably boring are actually gardens of tourist delight. (Oklahoma, for instance, boasts Oral Roberts' Prayer Tower AND Enterprise U.S.A. AND the Tri-State Spooklight!!!)*

***Roadside America** does, however, have one humongous flaw: The authors refused to mar their sparkling narrative with such picayune details as* addresses *and* phone numbers *and* directions. *How do these guys think we're gonna find these places — by* psychic affinity? *Granted, many of the attractions (i.e. Wall Drug, SD and House on the Rock, WI) are located on such desolate stretches of highway that you'd have to be a blind, mummified, roller-skating parrot to miss the signs leading you in. But some good sights — such as the Nut Museum in Old Lyme, CT — are pretty well hid.*

*This is where **Weird, Wonderful America** comes in handy. It gives complete information on how to get to some of **Roadside**'s best destinations — including addresses, phone numbers, admission prices and hours of operation. **Weird, Wonderful** is also better organized: attractions are listed, not by category (as in **Roadside**), but by state (which is, after all, how most people travel).*



*But as useful as it is, **Weird, Wonderful** lacks **Roadside**'s gonzo enthusiasm for the disgustingly tacky side of American tourism, unaccountably missing must-sees like Rock City, GA, while devoting untoward amounts of space to such thrilling destinations as the Girl Scout National Center and the Bowling Hall of Fame. If you get stuck shelling out $3 a head for someplace like that, you have no one but yourself to blame. So keep both guides in the glove compartment. You'll need them next summer when you're looking for someplace cheap to dump your carload of screaming kids.*

—Sarah Vandershaf

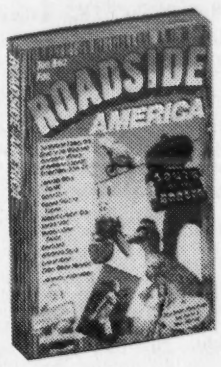
Geographic Center of North America, Rugby, ND ***—Roadside***

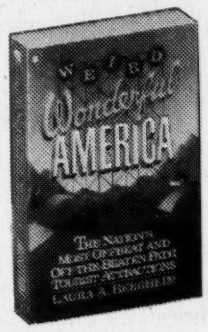
•

Rock City's greatest achievement, Mother Goose Village, comes next. The Village sits inside a dark room the size of a small auditorium. It stretches before you into the darkness — a huge ultraviolet tableau — an alien landscape of dozens of intermingled dioramas depicting Mother Goose rhymes topped by a ten-foot-tall castle. Entire families shuffle like zombies around the village, barely illuminated by the glowing dioramas. No children cry. All are in awe. Hushed voices of parents and children mingle with the unrecognizable music echoing from above. There's Jack Spratt. And Little Bo Peep. And a dish running away with a spoon. Who needs drugs? Life doesn't get any freakier than Mother Goose Village.

—Roadside

Roadside America
Jack Barth, Doug Kirby,
Ken Smith, Mike Wilkins
1986; 221 pp.
$9.95
($11.45 postpaid) from:
Simon & Schuster
Mail Order Sales
200 Old Tappan Road
Old Tappan, NJ 07675
800/223-2336
or Whole Earth Access



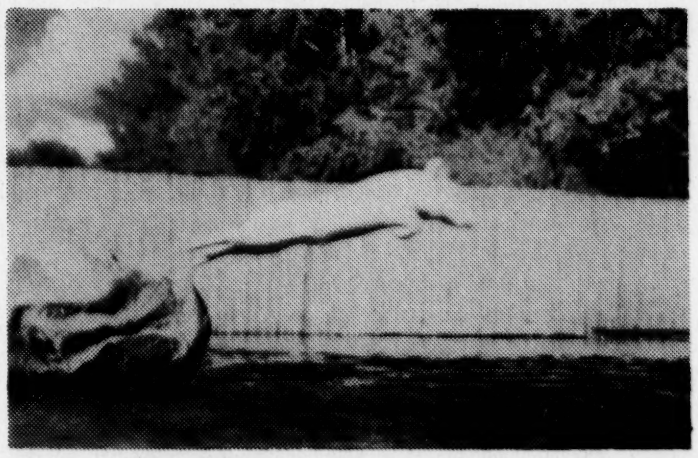


Weird, Wonderful America
Laura A. Bergheim
1988; 265 pp.
$8.95
($9.40 postpaid) from:
Macmillan Co.
Front and Brown Streets
Riverside, NJ 08075
609/461-6500
or Whole Earth Access

•

You climb aboard a submarine floating near a concrete volcano. A beautiful girl in a skimpy toga appears in the volcano's entrance and introduces Ralph. Ralph is a pig, or, more precisely, a diving pig. The volcano erupts! Ralph quickly dives from the cave entrance and helps your submarine escape underwater to "another dimension in time" where, at the Lost Continent of Atlantis, mermaids and mermen perform magic tricks and comedy routines! No, you have not died and gone to Tourist Heaven. This incredible show is performed here on earth, every day in fact, at Aquarena Springs in San Marcos, TX.

—Roadside



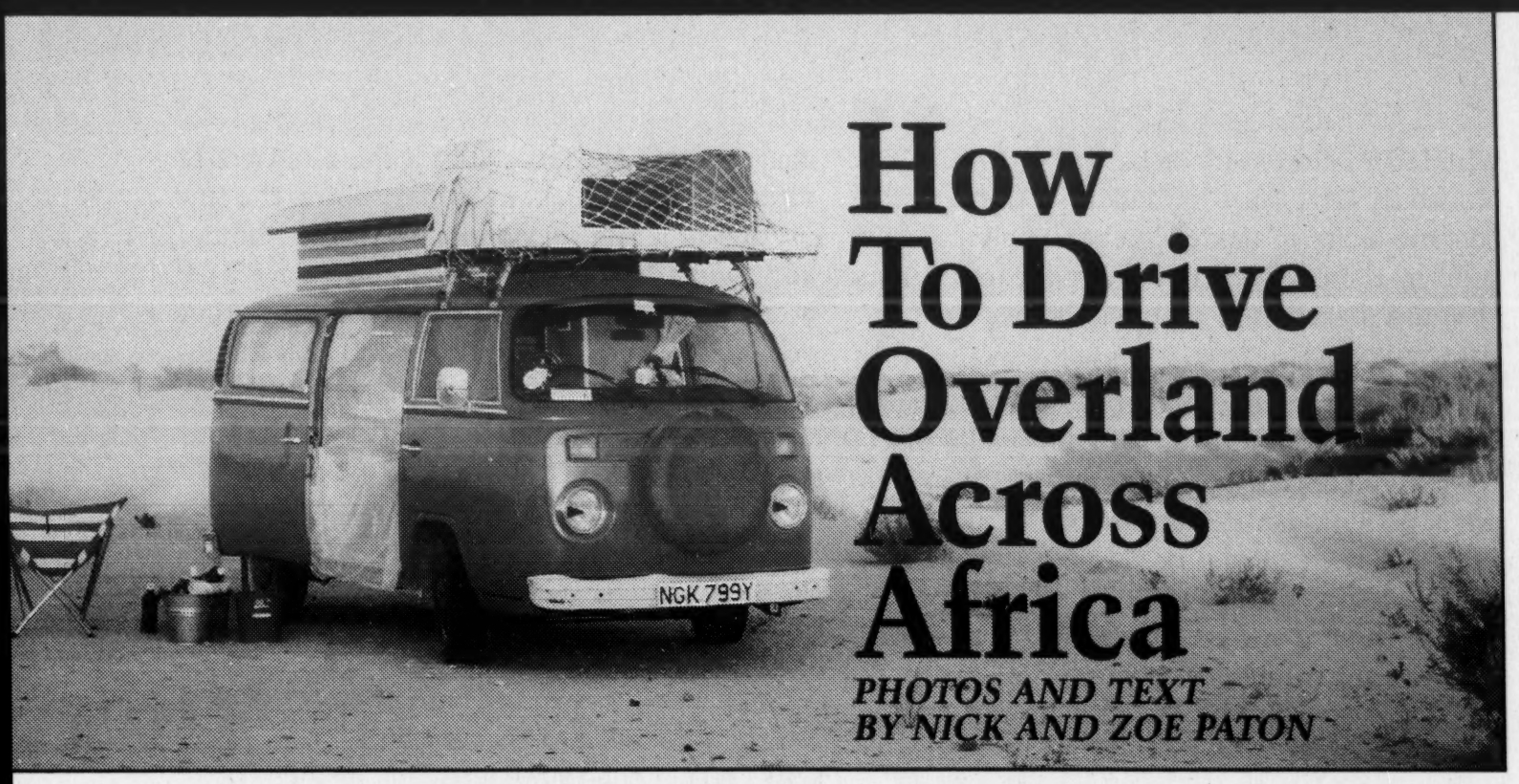
Aquarena Springs' star performer Ralph is a blur as he streaks over the water. ***—Roadside***

•

Mitchell's Corn Palace is built out of reinforced concrete, not corn, as many believe. Its exterior, however, is completely covered with native South Dakota corn, grain, and grass murals. Corn husks are sawed lengthwise and then nailed flat to outside panels that are changed yearly. Typical themes are "South Dakota Birds" or "A Salute to Agriculture." *—Roadside*

•

[Wooden sign at entrance to Tom Gaskins' Cypress Knee Museum, Palmdale, FL]:
"The Cypress Knee Industry Was Started By And This Museum Was Built By A Selfish Reactionary, Without Any Help Ever, From Any City, County, State, Or Federal Government. No Price Top, No Price Bottom, No Subsidy, No Labor Union Protection. What You See Here Can Never Be Duplicated. Souvenirs Of A Time Before Civilization Covered The United States." *—Weird, Wonderful*



How To Drive Overland Across Africa

PHOTOS AND TEXT BY NICK AND ZOE PATON

WITH TRAVEL IN AFRICA BECOMing ever more popular, most people are turning to the many books on the market that describe the various aspects of preparation for such a trip. We too referred to these books, but having just completed a year's journey in our VW Kombi, felt that they did not tell the whole story. The following article is a supplement to those books, a few tips that will hopefully improve on the quality of adventure, as well as maybe saving some money.

VEHICLE PREPARATION

Most books deal quite heavily with the choice of vehicle and the best way to fit it out. The older and consequently cheaper Land Rover is being rapidly overtaken in popularity by the Toyota Landcruiser and the reason seems obvious. Turning up at one of the few campsites in Africa, the Landcruiser owners would be found at the bar, while the only view one ever got of a Landrover owner was of a rather dirty pair of legs sticking out from underneath! There were some jubilant chuckles in Kisangani campsite in Zaire when Fuzzy, a Landcruiser owner, was caught opening his bonnet; we all waited in anticipation to find out what had gone wrong. The Landrover owners were deprived of revenge when he announced with a twinkle in his eye, "Oh, I'm just cleaning the engine!"

VW Kombi vans such as the one we used are still seen bashing through and proved surprisingly strong, dare I say more so than Land Rovers, but the rear-mounted aircooled engines are very vulnerable to ingression of huge quantities of dust that, if the engine coverplates and seals are missing (usually the case, it seems), can cause many problems, probably ending with a complete rebuild in some tiny village in the middle of nowhere. VW publish an excellent pamphlet including sets of drawings for protection plates and for driving their vehicles on rough terrain.

And so on to filling your chosen means of transport with all the goodies described in the books. It was easy to spot those people who had done this before — they didn't seem to have anything! Nicely veneered cupboards and the kitchen sink are for the three-week camping holiday and have no place here. Dead weight breaks things and causes you to become stuck more often. The best set-up was using strong plastic boxes to store clothes, food, cooking utensils, containers for water (minimum 60 litres) and engine spares etc, with a wooden platform in a metal frame on top. Those items used every day are in boxes placed nearest the access doors, while access to the rest is gained by lifting a plank or two over the relevant box. Sleeping is done on the platform. Everyday items needed are the same as what would be carried in a backpack. As for food supplies, some is needed, mainly for desert crossings and to supplement the rice, tins, or sardines and tomato puree for sale almost everywhere. Thinking there'd be no food available, we took a lot of our own

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To keep up with travel gossip I read several low-budget newsletters. I can find more practical advice in one of them than in all the other commercial travel magazines combined. One of the better newsletters is Globe *($14/year [6 issues] from BCM/Roving, London, WC1N 3XX, England), which chiefly consists of letters from returnees briefing friends on their round-the-world adventures. This letter in a recent issue is the kind of sharp counsel that can cut my moorings and send me off wandering again.* —Kevin Kelly

which, I'm almost too ashamed to admit, included 80 large tins of pilchards! After we had become heartily sick of pilchards in curry/stew/by themselves, they did make prestigious gifts to village chiefs who had helped or entertained us!

Though rather overpriced, a twin-burner kerosene stove by Optimus featured a good quick-start preheater which meant we didn't have to carry alcohol for this purpose. Other people using the little Optimus camping stove that packs into a metal box were disappointed with its performance and general quality, and wished they had the multifuel version by Coleman. A cheap effective stove is the Primus, available it seems just about anywhere in the world.

We had some difficulty in buying kerosene because of the different names it is called in the various countries. The English call it paraffin. The only French version we could find were small half-litre bottles called Kerdane (a trade name). The Italians call it keronsina and it proved very elusive; a lot of our sightseeing consisted of doing the rounds of the hardware shops and poking the remains of the last Kerdane bottle under the poor owner's nose, while asking if he had "parafina liquida per lampada" (liquid paraffin for lamps) in our best pidgin Italian. We were usually offered a block of paraffin wax or some stuff to make jam set! French West Africa really baffled us until we realised that the single pump in every station labelled "petrole" didn't contain some sort of different benzine (French for petrol) but instead, kerosene!

You will notice that I have not mentioned gas. There is a good reason for this — it is dangerous. During our trip we heard of three fires caused by gas; it is very tempting to slip in a gas 'fridge, after all it doesn't weigh too much and just think of those cold drinks available throughout the day. The three incidents all happened in Land Rovers and were due to either petrol igniting with the pilot light from the 'fridge while being poured into the fuel tanks under the seats, or to the tanks leaking (they are notorious for this) and going up. No-one was killed but in one case it was a close thing, where fortunately the victim had medical insurance and was flown out by air ambulance from Zinder in Niger and is now recovering from 70% burns.

People love to fit roofracks on their vehicles; it makes them look like the intrepid explorer they hope to be and they think it allows them to fill it with all sorts of junk. One couple felt that two windsurfers with all the bits were of vital importance (though on reaching the first bit of sea, found they'd left the sails at home!) and someone else had an Aladdin's Cave-like box that was so heavy, the roof pillars on their vehicle cracked on all four corners. All manufacturers specify the maximum weight that can be carried on the roof and it is surprisingly low, so don't exceed it. The roofrack is needed to carry fuel jerricans and maybe an extra spare wheel, but no more. If the weight of fuel required exceeds the manufacturer's spec, carry it inside, not outside on bumpers or on the side, where it will probably be bashed off, causing a fire. In the case of diesel, which has a foul smell, it is best to build in extra tanks rather than have jerricans inside.

POLICE & PEOPLE

This sort of trip allows one to come into contact with many different people and the way you approach them can make a lot of difference to their reaction to you. This especially applies to the customs and police officials you meet at every border. Neat, clean clothes (we had a set of "border clothes") and tidy hair can work wonders. I always tried to shake hands with these people and especially so with soldiers who would stop us in remote villages. The antics of one man, as he tried to transfer his machine gun to his left hand, while still pointing it at me, in order to shake the hand of this crazy smiling white man, still makes us laugh. But it gave us an easy passage through that village, where other people had been held up for hours. Flattery can get you everywhere with these guys as you admire the uniform and weapons they carry, and tell them what good work they are doing, as you try to ignore that gun pointing at you! Bribery at some border points was endemic, especially at Assamaka entering Niger from Algeria, where officials took a brand-new spare tyre from someone while we were there. In reality you must be firm and polite, but never impatient or angry; have a stock of "special presents" for them, which could be a biro (or in our case a tin of pilchards!) or a plastic toy car "for your son". A small stock of cheap gifts can make all the difference, so please do not resort to handing over expensive items or money because it makes it far more difficult for the people behind. Once we had our passports and vehicle documents taken "for inspection" to be returned only when we handed over a bottle of whiskey. By taking the attitude of "you can keep our documents,

Some people do it in style! This custom-built Beetle from Italy carried a foldaway two-person tent on the roof.

they are not worth anything'' and generally making ourselves at home in the police courtyard, the papers were then returned and we were allowed to continue.

TO SELL OR NOT TO SELL

Many people leave home, expecting to be able to sell the vehicle on reaching their destination in either East or South Africa. Unfortunately this is no longer possible except with a great deal of luck. Most of these countries do not want old foreign vehicles because (officially) they have their own car industries, so go to great lengths to make life as difficult as possible for anyone to register such a vehicle. In Kenya the bribes would go sky-high and even then the officials wouldn't guarantee the necessary signatures.

The *carnet de passage*, a temporary import/export document for the vehicle, must be correctly discharged in the country in which it is sold; otherwise a bill for unpaid import duty will arrive, forwarded via your own country's automobile association. We heard of someone who sold his Land Rover in Tanzania, deciding to risk not discharging the *carnet*. He was horrified to receive a bill for 100% duty from the South Africa Customs. The man who'd bought the Land Rover had taken it to South Africa, quoted our friend's *carnet* number and then sold it. The AA were not very sympathetic towards his case since the correct paperwork had not been completed.

Some people rely on other potential overlanders buying their vehicles and doing a return journey back to Europe. This is fine except that there are far more sellers than buyers. Any prospective buyers of one of these vehicles must bear in mind that their purchase will most likely be in terrible condition, so set aside some money for repairs.

For those not lucky enough to find a buyer, the last alternative (except for driving it back home of course!) is to ship it back. If you don't want your vehicle stripped en route, the best bet is to put it in a container. This can be expensive but prices to ports in various countries in Europe, for instance, vary enormously, so if you're prepared to pick it up and drive it home from another country, you could save a lot of money.

THROUGH AFRICA ON TWO WHEELS

Not everyone crosses Africa using four wheels; a few brave souls attempt it on two wheels of both the petrol and leg-powered variety.

First, the motorbikes. The most reliable models were the Yamaha Tenere and the Honda Paris/Dakar, both enduro models, specifically designed for this sort of trip. The BMW equivalent, though, suffers from having a feeble rear mono-shock absorber that is expensive to replace and almost unobtainable. With motorbikes, the weight element is even more critical, especially considering that extra fuel will

Who says it's warm in the desert? The Toyota Landcruiser on the right is very lightly laden on the inside; however the roofrack is overloaded.

have to be carried as well as water and the other necessities; careful planning is needed.

You reckon that it is impossible to bicycle from North to South Africa. So did we until we met two Dutchmen in Cameroun who were on their way back to Holland, having spent more than two years on the trip and had decided to cycle back. Two other friends told us that on a year's trip through Kenya they'd only had one puncture and no breakages. They had, though, done their homework thoroughly.

AND FINALLY . . .

A few tips to help you on your way. When sorting out what money to take, be sure to include some French Franc bills. In Niger especially, many banks will only accept these.

A solar-powered calculator (no need for spare batteries) allows you to check, for instance, that the quantity of fuel given tallies up with the price indicated on the pump. It's amazing how inaccurate they can be sometimes!

A logbook not only allows you to keep a record of such things as money changed and fuel bought and consumed, it also tells its own story of the trip. A glance at the phrase "bent front axle" in our own log reminds us of when, while looking for rhino in tall grass, we hit a large boulder, writing off the axle.

Our short-wave radio proved very entertaining while also supplying useful information as to the political situation in Chad and later on, the civil war in Uganda. BBC reports from Kampala that all was now quiet there, led us to the decision to transit through Uganda to Kenya.

Many people decide not to take binoculars and so miss out on the abundant bird and animal life throughout. We always kept ours hidden from official eyes though, especially in border areas.

We heard of a number of people who were unable to have welding repairs done because the workshops didn't have any welding rods. With this in mind, it would be a good idea to carry a few rods and especially if any fitments are made of stainless steel or aluminum where special ones are needed.

At border posts we used to look smugly at the occupants of other vehicles who were sweltering in the heat while waiting sometimes hours to be processed. We were okay because we'd fitted a couple of fans in the front. One in the sleeping area is an excellent idea for those hot sticky nights, and keeps the mosquitoes off you.

Good luck! ■

African Safari

Subtitle: "The Complete Guide to Ten Top Game Viewing Countries." Wherein the author reveals little-known directions to the best areas on the continent of Africa to view extensive populations of animal wildlife. You can waste a lot of time trying to find out what this guy has spent two years in the bush researching and was thoughtful enough to put into a book for us. Where are the best places, and what time of year, and how do I get there? Considering the cost of safariing, this guidebook is a wallet-saver. —*Kevin Kelly*

•

In most cases the best game viewing corresponds to the dry season. Wildlife concentrates around waterholes and rivers and vegetation is less dense than in the wet season, making game easier to find. There are, however, exceptions. For instance, the Serengeti migration often begins at the height of the rains in Tanzania.

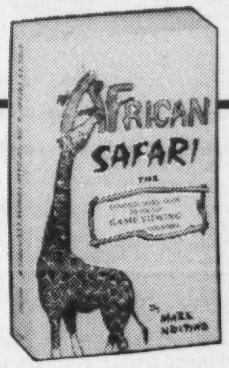
During the rainy season the land is often luxuriously green, the air clear. People with dust allergies may wish to plan their visits soon after the rains have started. Game is more difficult to find but there may be fewer travelers in the parks and reserves.

•

Searching for gorillas in the misty mountain air of volcanos can be likened to an adventurous game of "hide and seek" in which the guides knew where they were yesterday but must find their trail again today and follow it. Finding gorillas can almost be guaranteed for those willing to hike 1-5 hours in search of them. . . .

The search often involves climbing up and down gullies and pulling yourself up steep hills by holding onto vines and bamboo. The pace is slow but you must be in good condition to keep up; the search may take you to altitudes from 7,500 to 9,800 feet. This sounds difficult, but most anyone in good physical condition without a heart problem can do it.

African Safari
Mark Nolting
1987; 250 pp.
$15.95
($17.95 postpaid) from:
Global Travel Publishers
P. O. Box 2567
Pompano Beach, FL 33072
305/781-3933



or Whole Earth Access

Bush Baby

•

Zambia is the best country to visit for walking safaris, which are operated in South Luangwa (my first choice) and Kafue (my second choice) National Parks. Groups of usually up to six adults (children under 12 are not allowed) are accompanied by an armed wildlife guard on slow-paced safaris of 2-6 days in length, overnighting in simple but comfortable camps (often chalets). Luggage and provisions are carried ahead to the next camp by vehicles using a different route from the walks. Wildlife is tracked just as in a hunting safari except game is "shot" with a camera instead of a gun. Since more wildlife is usually seen from a vehicle, a combination of walking and vehicle safaris is advised.

•

Pony Trekking
Lesotho is one of the best countries in the world for pony trekking. The Basotho pony is the chief means of transportation in the mountainous two-thirds of this country and the best way to explore this land of few roads. Bridle paths crisscross the pristine landscape from one village or family settlement to the next.

Regensburger Hütte.

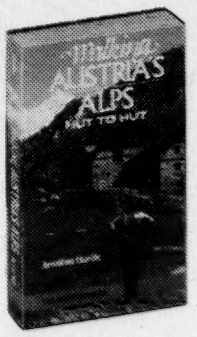
Walking Austria's Alps

I am always a sucker for new places to walk through at length, unencumbered by carrying a makeshift house on my back. Walking should be carefree and human. Burdened with a fully equipped backpack, sore and sweating, I feel more like I'm a donkey bamboozled into believing it's fun.

Countries like Nepal, England, Greece all offer areas where one can saunter along "bareback" without heavy nomadic baggage. One tramps through countryside during the day and ends up at night in warm shelter with hot food. No tent, no stove, no pots, no bent back. Civilized, yes? With this book, I can now visit one more walker's Shangri-la.

Mapped out here are 10 detailed itineraries lasting four to eleven days. Each takes you from mountain hut to mountain hut in the Austrian Alps. (Don't be misled by the description "hut." These aren't shacks; they are overly-sturdy lodges with spartan furnishings and, often, simple, hearty meals provided.) Do a couple of these routes and you'll be ready to meander between the other 500 huts hidden in the valleys you passed. —*Kevin Kelly*

Walking Austria's Alps
(Hut to Hut)
Jonathan Hurdle
1988; 239 pp.
$10.95
postpaid from:
The Mountaineers
306 Second Avenue W.
Seattle, WA 98119
800/553-4453
or Whole Earth Access



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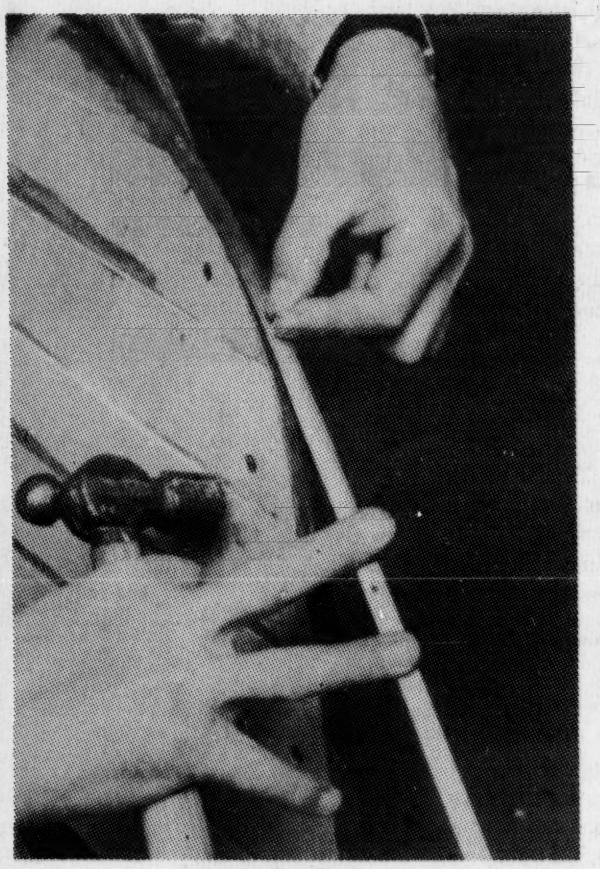
The tours in this book are for strong walkers who have explored mountains and moorlands but who are not interested in breaking endurance records or their necks. They are for people who expect their mountain excursions to be energetic, but who also want plenty of time for dawdling, eating lunch, searching for edelweiss (don't pick them; it's illegal), or just admiring the view. Even so, the routes described here are not short on challenges.

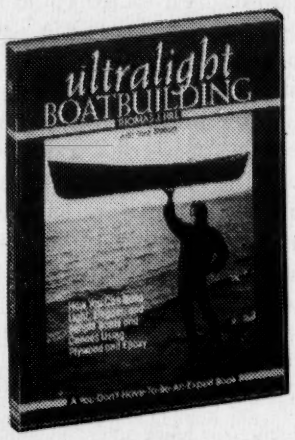
•

Most hut accommodation consists of *Matratzenlager,* literally a "mattress camp," where long mattresses provide sleeping space for perhaps twenty people at a time, with no segregation by sex or age. This may cause some raised eyebrows among prudish visitors, but it is the most efficient way of accommodating large numbers of people in a small space. A few individual beds are available at higher prices.

Ultralight Boatbuilding

The guy on the cover doesn't have a steel pipe in his shirt, that canoe only weighs 25 lbs.! It's made of thin plywood bonded with epoxy. The sophisticated construction methods are actually quite simple to learn by anyone with a bit of making-things experience, though you'd never guess that from looking at the elegant results. Mr. Hill presents very detailed instructions for making the cover canoe and a skiff. Other designs using the same methods are shown too, along with a list of suppliers and other arcana you'll need to know. Very thorough and properly inspiring, the book demonstrates what can be accomplished with an intelligent mix of traditional design and modern technique. —J. Baldwin





Ultralight Boatbuilding
Thomas J. Hill
1987; 134 pp.
$17.95
($20.95 postpaid) from:
International Marine Publishing
Rt. 1, Box 220
Camden, ME 04843
207/236-4837
or Whole Earth Access

When nailing the stem band on a canoe, start on the garboard and work toward the sheer. Note the epoxy under the stem band, sealing the plank ends and stem tightly together.

•

Lapstrake boats have been built for centuries, and plywood has been widely used for at least the past 50 years. In recent years, though, the quality of plywood and glue and the methods of construction have improved markedly, and acceptance of plywood among boatbuilders has increased. In a lapstrake boat built correctly with high-grade mahogany plywood and watertight epoxy, you need have no worries about leaks due to swelling and shrinking.

I prefer lightweight Bruynzeel mahogany plywood, which I consider simply the best-quality plywood I've ever seen. How durable is it? Lloyd's of London guarantees it for 20 years, a sure sign of confidence. . . .

Another story attests to this wood's endurance. Kenneth Mobert, a California boatbuilder, placed pieces of the plywood in a steam box alongside a piece of white oak. Then he applied heat to the box — 10 hours a day for 10 straight days. After 100 hours, the oak fell apart but the plywood did not delaminate. . . .

One of the beauties of ultralight boatbuilding is that you can order mahogany plywood and have it shipped anywhere in the country. . . .

Although the plywood is expensive, the building method is ultimately economical because you can "nest" curved planks on the panels, minimizing waste. Materials for a 12-foot canoe cost about $250, including paint and fasteners.

Boatbuilding Woods

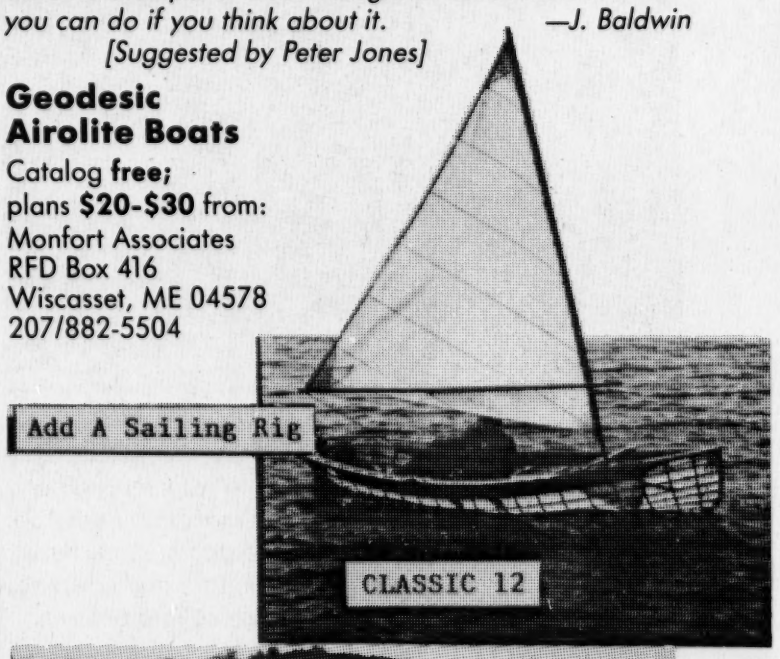
Boatbuilders are often frustrated in their search for suitable wood. ***WoodenBoat Magazine*** *is on the case (as usual) with this annotated directory of suppliers — 310 of them in 38 states. A needed service well presented.* —J. Baldwin

Boatbuilding Woods
(A Directory of Suppliers)
Anne Bray
and Cynthia Curtis
1987; 124 pp.
$9.50
($13 postpaid) from:
WoodenBoat Publications
Naskeag Road
Brooklyn, ME 04616
800/225-5205
or Whole Earth Access

Geodesic Airolite Boats

Aw c'mon . . . a sailing dinghy that weighs 30 lbs.? A canoe that weighs EIGHT pounds! These elegant craft by Platt Monford are available as plans — a few as kits. They're not an awful chore to make, if you have a bit of experience with tools. He claims, probably rightly, that the learning of his lightweight techniques will actually be fun and interesting. Note that while these craft are elegant (you can see right through many of them!) they are not heavy-duty expedition whitewater weapons. As you can see from the photo, they're more akin to aircraft. He also offers a color video of building the 12-foot canoe (20 lbs), plus some of his fleet at sea. I love this sort of extreme example of clear thought in action. Shows what you can do if you think about it. —J. Baldwin
[Suggested by Peter Jones]

Geodesic Airolite Boats
Catalog **free;**
plans **$20-$30** from:
Monfort Associates
RFD Box 416
Wiscasset, ME 04578
207/882-5504



Patagonia Travel Coat

"But Sahib, you simply cannot attend His Excellency's reception looking like that!" *exclaimed my crafty native guide. "You must at least wear a coat and tie, and I fear that your tiny and unsavory flight bag holds nothing but Grateful Dead T-shirts. Most inappropriate!" Looking him right in the eye, I nonchalantly opened my bag and groped around until I found what I had been seeking, an insignificant-looking square cloth sack measuring but eleven inches to a side and an unimpressive one inch thick. I unzipped the modest container and removed its tightly folded contents, and before his wondering eyes, I donned a rather stylish brown herringbone tweed sport jacket, entirely free of tacky wrinkles. I was on my way, and sans pack; the jacket's commodious pockets easily held my passport and important papers. Tall tale from your Uncle J.? Nope. Well . . . it* wasn't a *fancy reception, but that coat really does the job, especially if you are one of those air travelers who has learned to eliminate hassle and lost luggage by carrying only an underseat bag. Another really good product from Patagonia.*

—J. Baldwin

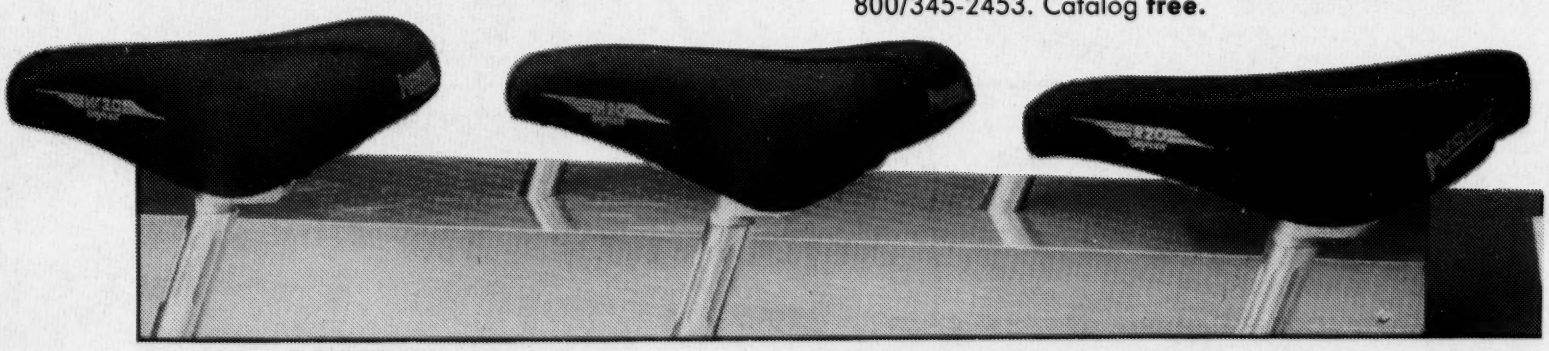
Patagonia Travel Coat: $133.75 postpaid. Specify short (38-40), regular (38-46), or long (40-46). From Patagonia Mail Order, P. O. Box 86, Ventura, CA 93002; 800/523-9597. Catalog **free.**

Avocet GelFlex 20 Bicycle Saddle

I don't know about your buns, but mine do not take kindly to being pummeled all day by a bicycle seat, especially if the ride is on rough terrain. It's the second day that's bad (unless you're into S&M); adding bruises to the bruises takes away a lot of the pleasure of whizzing. Fitness magazines would have you believe that it is just a matter of training sufficiently to harden your anatomy. My experience is that no amount of training helps, though perhaps you can train yourself to pretend you aren't hurting. Help has arrived. The Avocet GelFlex 20 saddle doesn't just make things a little better, it really solved the problem. Doesn't look funny, either; just a normal, slim seat covered in high-traction black Lycra. Inside, though, there lurks a heavy cushion of a gristly substance made by Spenco. The resilience is almost humanoid — it's a bit like sitting on yourself. Bony old me shamelessly uses the woman's model which is even more comfy. (If you fear derision, know that some very famous racers are using these now.) Reasonable price, too — $30 or so from local bike shops. A good idea, well done.

—J. Baldwin

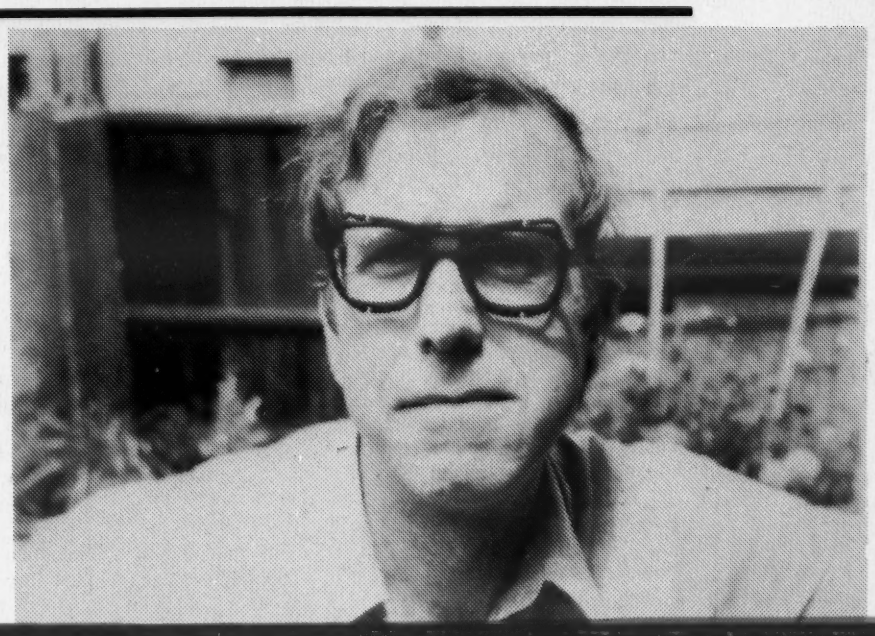
Avocet GelFlex 20 bicycle saddle: $29.95 from Bike Nashbar, 4111 Simon Road, Youngstown, OH 44512; 800/345-2453. Catalog **free.**

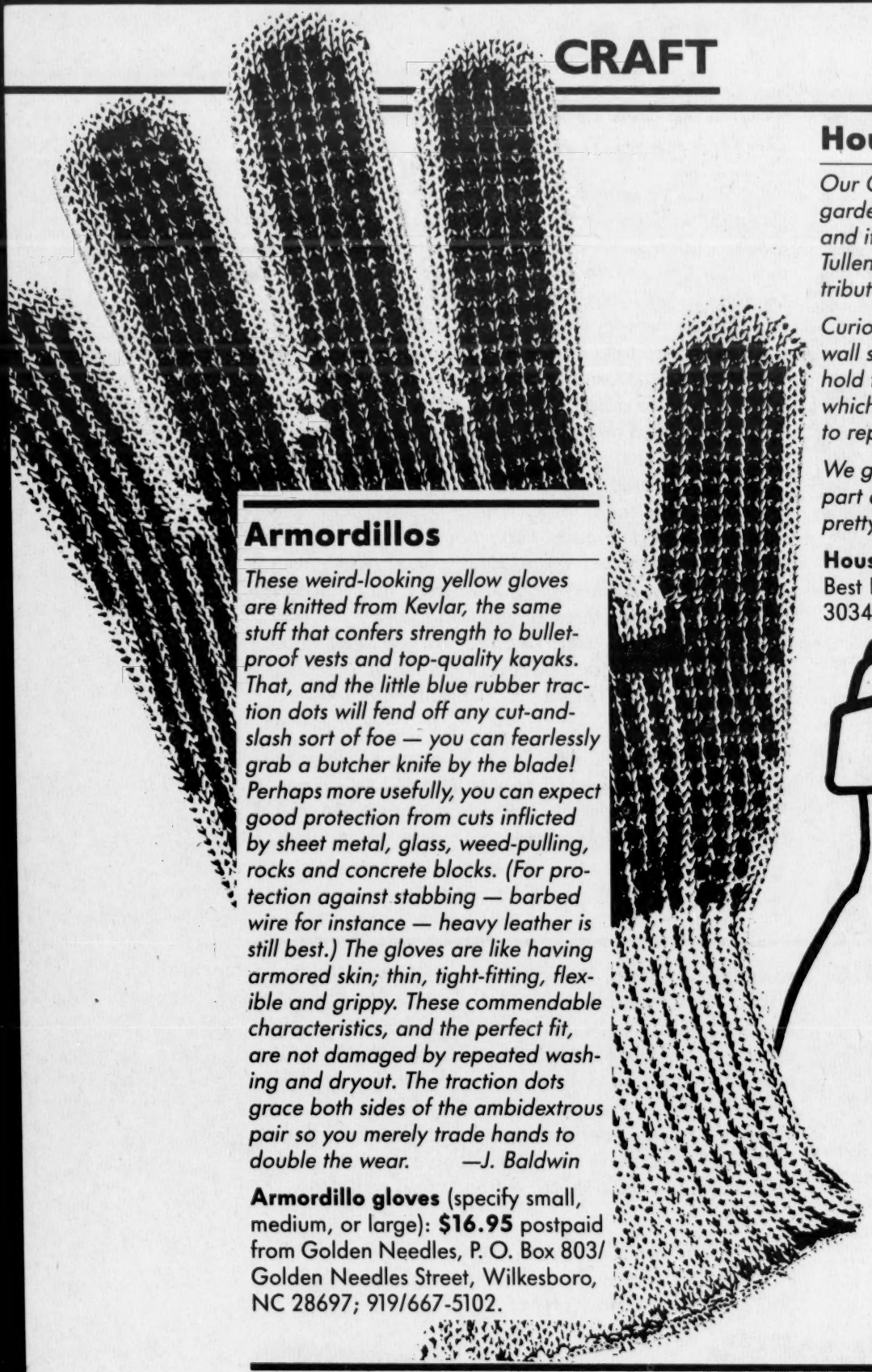


Combat Glasses

Combat glasses are great. They are cheap, they stay on even if jarred or if you are upside down, and they work under a scuba mask without (much) leakage. I have worn glasses for 37 years so far, and these are my favorite. I have two pairs: single vision and bifocal. Last year they saved me from serious facial injury. Are they ugly? Some think so but you don't have to wear them all the time though I do. Give them a try! *—Larry Murray*

Combat glasses: $59.95 postpaid (send prescription with distance between pupils) from Combat Glasses, 1710 S. Hillside, Wichita, KS 67211; 316/684-2362.





Armordillos

These weird-looking yellow gloves are knitted from Kevlar, the same stuff that confers strength to bullet-proof vests and top-quality kayaks. That, and the little blue rubber traction dots will fend off any cut-and-slash sort of foe — you can fearlessly grab a butcher knife by the blade! Perhaps more usefully, you can expect good protection from cuts inflicted by sheet metal, glass, weed-pulling, rocks and concrete blocks. (For protection against stabbing — barbed wire for instance — heavy leather is still best.) The gloves are like having armored skin; thin, tight-fitting, flexible and grippy. These commendable characteristics, and the perfect fit, are not damaged by repeated washing and dryout. The traction dots grace both sides of the ambidextrous pair so you merely trade hands to double the wear. —*J. Baldwin*

Armordillo gloves (specify small, medium, or large): **$16.95** postpaid from Golden Needles, P. O. Box 803/ Golden Needles Street, Wilkesboro, NC 28697; 919/667-5102.

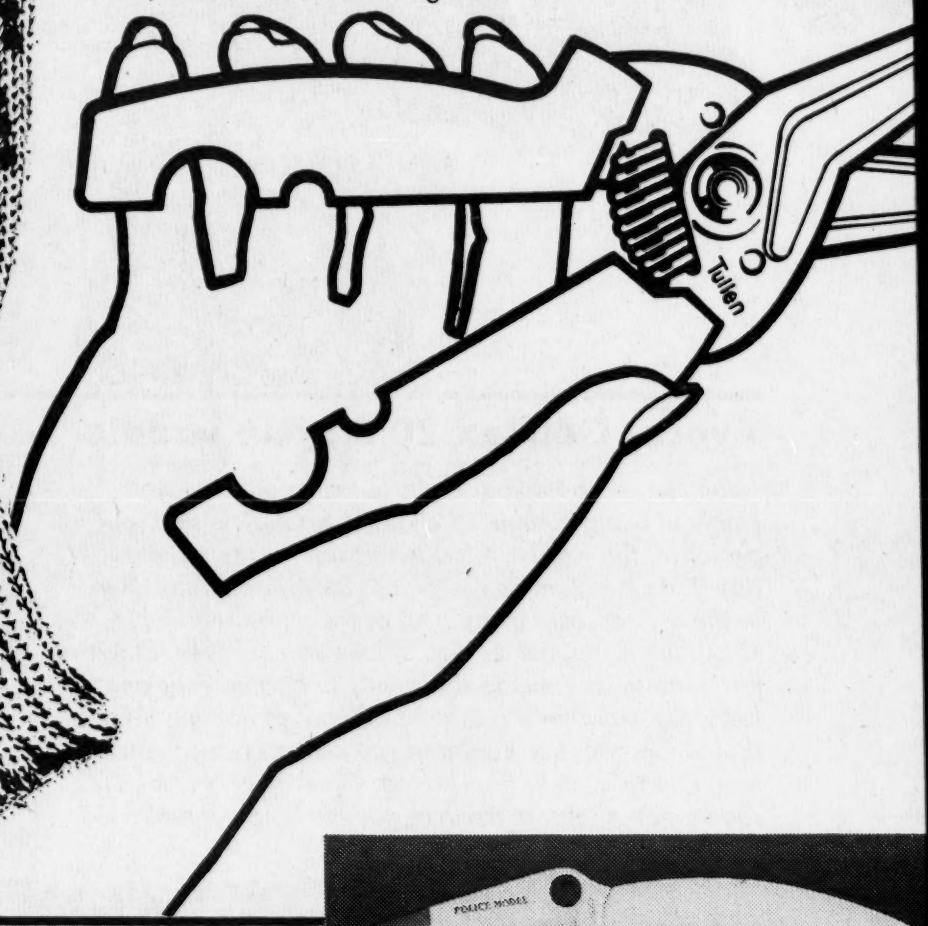
Household Cutters

Our Cutters have been in steady use in kitchen and garden for some years, so we can speak to durability . . . and its regular convenience. Made in New Zealand by Tullen, and previously hard to find, they are now distributed by Wilkinson.

Curiously, the sensible way of installing the really handy wall sheath is upside-down, since the spring handles hold the snips in position firmly. One of the few tools which is almost always in place, because it is as easy to replace as to lay down on the counter.

We gave one to our sailing friends and it's become part of the galley equipment . . . which says something pretty pointed. —*Kelly Yeaton*

Household cutters: $8.99 from Wilkinson Sword, 7012 Best Friend Road (attn: customer service), Atlanta, GA 30340; 800/241-8918. Catalog **free.**



Cutlery Shoppe

It's said that male knife-fanciers have trouble distinguishing between their dirk and their dick. This excellent catalog will increase the confusion.

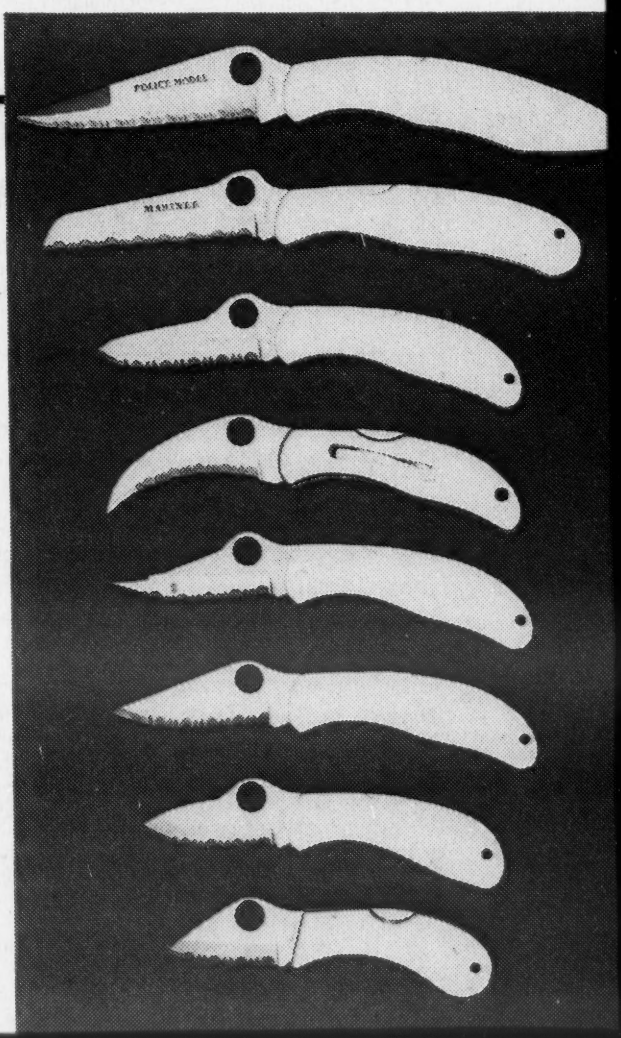
It features most of the best factory-made makes and models of sport knives at exceptional discount prices, with big color photos to aid mail-order decision. The 36-page catalog includes lines such as Victorinox (for instance, the Champ at $67 instead of the usual $90), Cold Steel (Tanto at $100 instead of $140), Gerber (Parabellum at $60 instead of $80), Puma (single-blade Game Warden folder at $135 instead of $180), Buck (Titanium folder at $70 instead of $110), plus Blackjack, Kershaw, Western, Tekna, Bali-Song, SOG, Muela, Timberline, Ek, good sharpening tools, and really nice service.

To my (and many people's) taste, far the best of the factory knife designers is now Al Mar. For me the most useful of his many blades is the Sere II folder with neoprene handle ($92 from Cutlery Shoppe, $114 elsewhere). The handiest of knives these days looks to be Spyderco's Clipit line, which clip on the top of your pocket and open slickly with one hand — the Standard is $32 here, $42 elsewhere. The best of the sharpening systems, because it gives precise angle control, is Lanksy ($24, plus I'd get some spare diamond stones), and the best of the touch-up-the-edge rigs is Spyderco's Tri-angle ($30).

—*Stewart Brand*

Cutlery Shoppe

Catalog **free** from:
7512-3 Lemhi, Suite 3
Boise, ID 83709
800/231-1272



Overhead Calculator

Calculator math, that is teaching math using calculators, is so effective that it is becoming mandatory in progressive elementary schools. This transparent glass (and solar powered!) calculator lets the teacher go through the steps projected overhead while the rest of the class finger-button their own. Two, four, six, eight, this is how we calculate.

—Kevin Kelly

[Suggested by Bob Albrecht]

Overhead calculator: $42 postpaid from Stokes Publishing, 1125 Robin Way, Sunnyvale, CA 94087; 408/736-4637.

Inch Mate

The Inch Mate is easier to use than its competition, and is self-explanatory so you don't have to refer to instructions or remember complicated procedures. It's particularly handy for reducing the sort of error that has your closet wall come out 1¼" from where you wanted it to be. Note: the only gripes I've heard about Inch Mate is that if you keep it in your back pocket, sooner or later you will kill it with bun-fu.

—J. Baldwin

Inch Mate calculator: $49.95 from Garret Wade, 161 Avenue of the Americas, New York, NY 10013; 800/221-2942. Catalog **$4.**

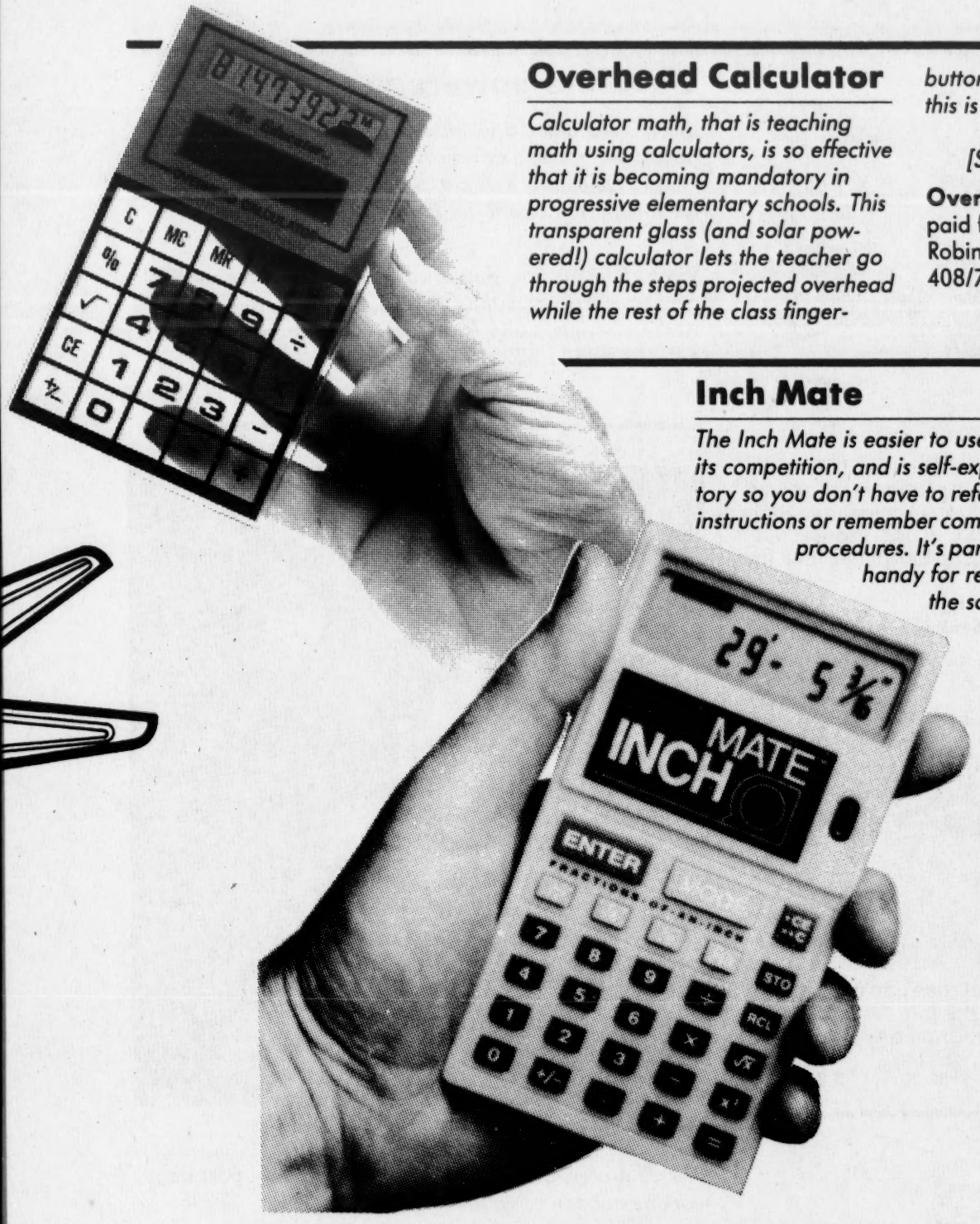
Proportional Scale

Let's say you want to reduce a photo by 26 percent. Or enlarge it 1.3 times. Forget *it, right? It'd take you too long to calculate what the new dimensions would be. Yet graphic artists must do this sort of thing many times a day. How do they do it? They have one of these things. It gives you the needed dimensions in maybe two seconds. Useful for anything, of course, from teeny to about eight feet.*

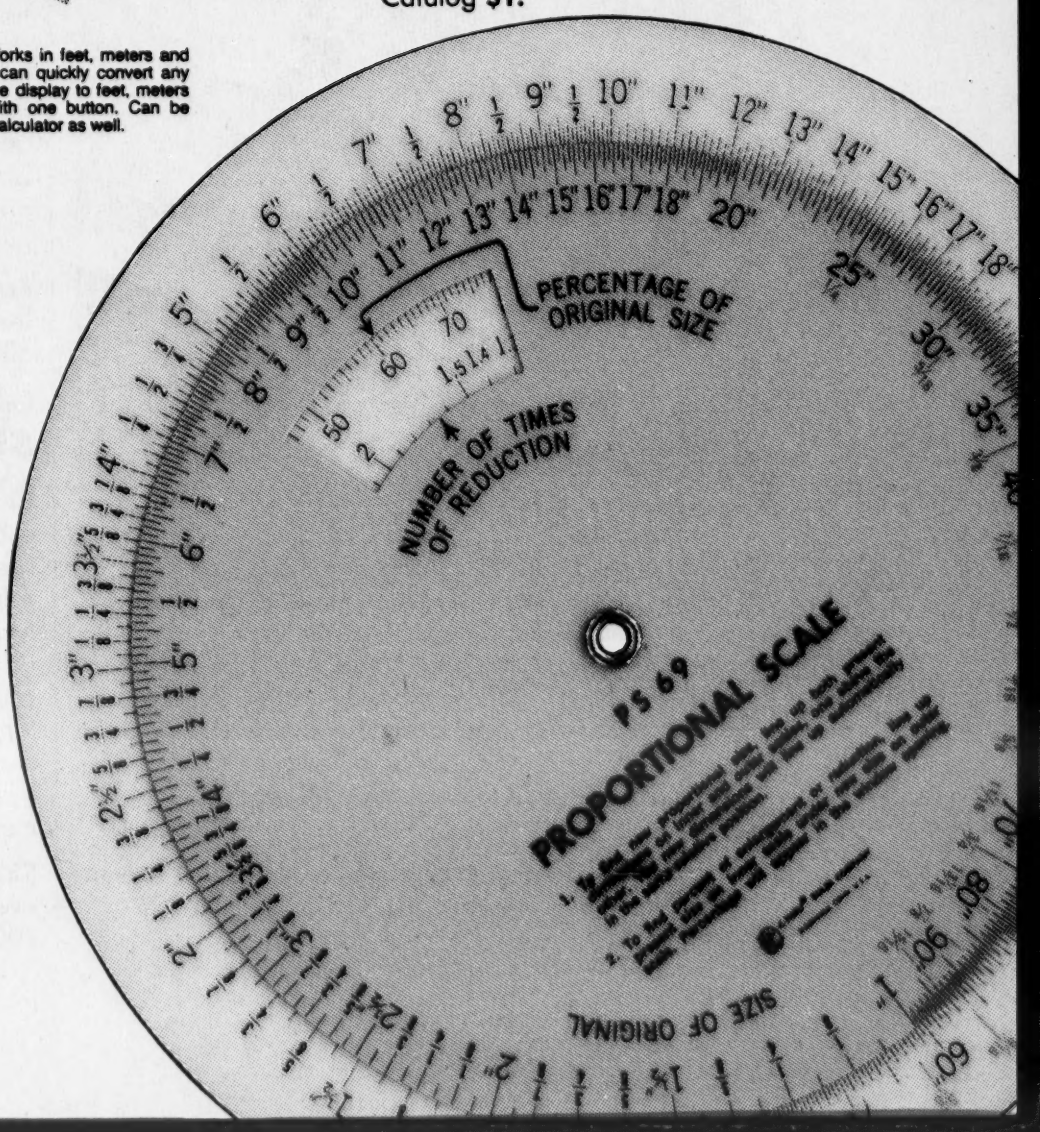
—J. Baldwin

[Suggested by Kathleen O'Neill]

Proportion scale: $2.50 from Dot Pasteup Supply Co., 1612 California Street/P. O. Box 369, Omaha, NE 68101; 800/228-7272. Catalog **$1.**



Foot Inch Calculator Thinks The Way We Do
Simply enter the feet, inches and fractions directly into the keyboard to divide, multiply, add or subtract. Works in feet, meters and decimal feet. You can quickly convert any measurement in the display to feet, meters or decimal feet with one button. Can be used as a regular calculator as well.



Police
3 7/8" modified clip point blade.
Retail $79.95
#SP1007 *Your Price* **$59.95**

Mariner
3 1/2" sheepsfoot blade.
Retail $69.95
#SP1002 *Your Price* **$52.95**

Hunter
2 5/8" drop point blade.
Retail $58.95
#SP1003 *Your Price* **$44.95**

Harpy
2 5/8" talon shaped blade.
Retail $58.95
#SP1008 *Your Price* **$44.95**

Worker
2 5/8" clip point double edged blade.
Retail $58.95
#SP1001 *Your Price* **$44.95**

Standard
2 5/8" skinning blade.
Retail $41.95
#SP1005 *Your Price* **$31.95**

Executive
2 1/8" drop point blade.
Retail $52.95
#SP1004 *Your Price* **$39.95**

Co Pilot
2" drop point blade.
Retail $48.95
#SP1009 *Your Price* **$35.95**

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SPYDERCO Clipits

These Clipit knives from Spyderco are the fastest opening folders we've ever seen. Their unique design allows you to retrieve the knife from your pocket, open it, use it and close it so fast (with only one hand) that onlookers will wonder where the knife came from. Only the finest stainless steel is used throughout these lockbacks. G-2 Chrome-Moly stainless steel is used in all models except the standard which is made with 6-A stainless. All 8 models are offered for right or left handed use, serrated or straight edge (please specify when ordering). *We highly recommend the models with serrations, as their cutting ability is unbelievable.*

Gas-Powered, Two-Speed Hammer Drill Can Go Anywhere And Has Much More Power Than An Electric

Powered by an air-cooled, 2-cycle, 15.9cc engine, this unique tool makes easy work of jobs requiring power away from electricity. Weighing only 11 lbs., you can deliver 28,000 blows per minute in the hammer drill mode. When run in the drill only mode, there is a surprising amount of power. Capacities are 1-1/4" in wood, 1/2" in steel and 3/4" in masonry. High speed delivers 1400 RPM and low delivers 700 RPM. In use, there is surprisingly low levels of vibration transmitted to the user. Large fuel tank for uninterrupted use. Recoil start.

		List	SALE
801-459	*Ryobi EH-1930 Gas-Powered Drill*	$492.00	**$359.00**

Gas-Powered Variable Speed Recip Saw Goes Where No Recip Saw Has Gone Before

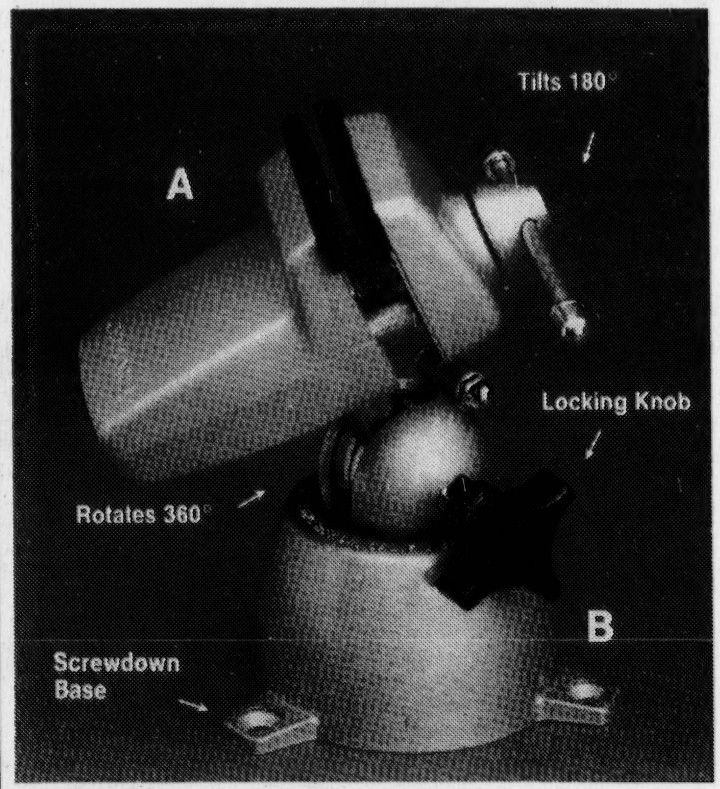
You won't believe the power. Powered by the same 15.9cc motor as the gas drill, you can work in places you otherwise couldn't. No load speed is up to 2,000 strokes per minute and stroke is 1". Nice balance and easy to grip handles and controls make for an easier time on the job. Accepts standard shank blades and cuts fast, clean and smooth as any recip saw. Weight is 11 lbs.

		List	SALE
801-460	*Ryobi EJ-100 Gas Powered Recip Saw*	$492.00	**$359.00**

Gasoline-powered tools

Gasoline-engined drill and saw are just what you need for building that cabin or corral away from the electric plug. These machines are powerful, and will run as long as you feed them — no batteries to go flat. Noisy though. . . .
—J. Baldwin

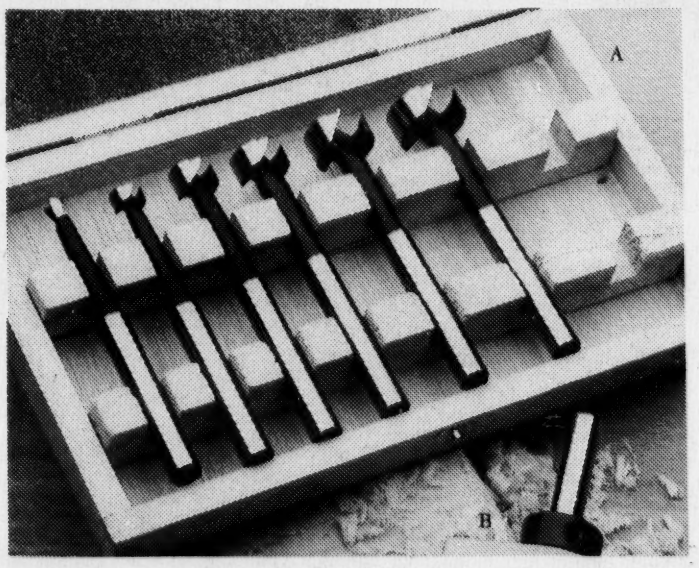
Ryobi EJ-100 gas-powered recip saw and EH-1930 gas-powered hammer drill: each **$359** from Woodworkers Supply, 5604 Alameda NE, Albuquerque, NM 87113; 800/645-9292. Catalog **free.**



PanaVise

Diverse professionals in need of a means to support small work have been using the PanaVise for years — it's the standard of the breed. There is an amazing catalog of jaw types available: rubber, metal, computer board holders, custom mini-tables of all sorts. They insert into one of several choices of base, all of which feature a spherical joint that permits the work to be presented at any desired angle. Ours have been working for us for twelve years now. No complaints. *—J. Baldwin*

PanaVise: basic system **$39.50** from Jensen Tools, Inc., 7815 South 46th Street, Phoenix, AZ 85044-5399; 602/968-6231. Catalog **free.**



Forstner Bits

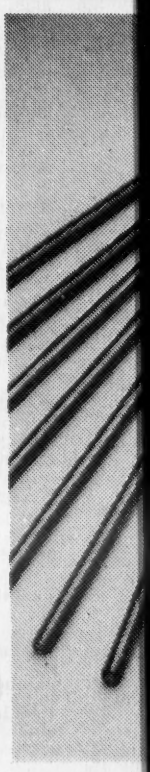
Still not in most hardware stores, these bits aren't in common home shop use yet. Too bad; they can do things you wouldn't believe like drilling half *a hole (really!) or drilling overlapping holes. Available ¼" up to 3" diameter, and not cheap. Hard to sharpen too. But perfectly machined flat-bottomed holes, even at angles, are hard to do any other way. Buy as good quality as you can afford. (Prices range from about $8 to more than $50 each.)*
—J. Baldwin

Forstner bits: $8 and up from Garrett Wade, 161 Avenue of the Americas, New York, NY 10013; 800/221-2942. Catalog **$4.**

Shopsmith Maxi-Clamp® System

Craftspeople will agree that clamping odd-shaped work can be a nasty problem. And note how many different specialty clamps are available — there must be at least a hundred different types, let alone the subspecies. The Maxi-Clamp® is a pile of parts. You make *the clamp, jig, or even gear puller out of the threaded rods and trick corner fixtures. It's a great idea, and it works fine as long as you refrain from gorilla-arming the rig on excessively heavy work. Of course the parts are reusable over and over, taking on whatever shape your ingenuity may require.* *—J. Baldwin*

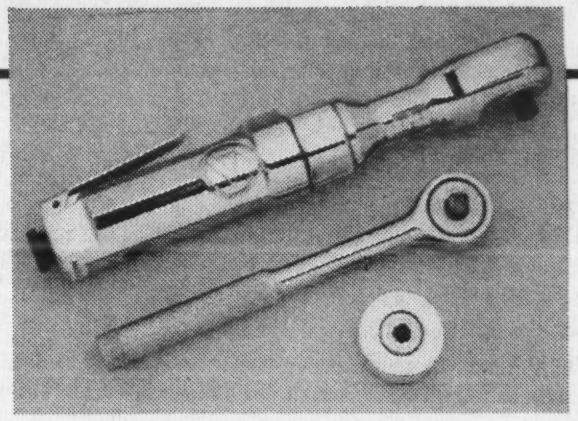
Shopsmith Maxi-Clamp® System: $49 from Shopsmith, Inc., 3931 Image Drive, Dayton, OH 45414; 800/543-7586. Catalog **free.**



Radian Wrenches

With underhood working space getting less and less, there is often no room to move the handle of a socket wrench far enough to engage the next "click." Radian wrenches don't have teeth, clicks, or increments; if you can wiggle the handle even a teeny bit, you can turn the bolt or nut. I've used one for years, and happily vouch that they greatly reduce frustration and blood loss.
—J. Baldwin

Radian wrenches: $17.95 (1/4" drive palm wrench) — **$124.95** (3/8" drive air-driven model) from The Eastwood Company, 580 Lancaster Avenue/P. O. Box 296, Malvern, PA 19355; 800/345-1178. Catalog **free.**



7452	¼" Radian Drive Palm Wrench	**$17.95**
7554	⅜" Radian Drive Palm Wrench	**$19.95**
7456	¼" Radian Drive Hand Wrench	**$26.95**
7458	⅜" Radian Drive Hand Wrench	**$29.95**
7460	¼" Radian Drive Air Wrench	**$114.95**
7462	⅜" Radian Drive Air Wrench	**$124.95**

Balldrivers

Bicycle owners, among others, know what "allen-heads" are: the bolts with a hexagonal hole requiring a hexagonal wrench or driver to turn. Unfortunately, the allen wrenches must be perfectly aligned or you can't get them in the hole. More frustrating is when you get the wrench in position only to find that there isn't sufficient clearance to turn it. Balldrivers to the rescue! They're semi-spherical on the tip, allowing serious misalignment with no jamming. Good idea. *—J. Baldwin*

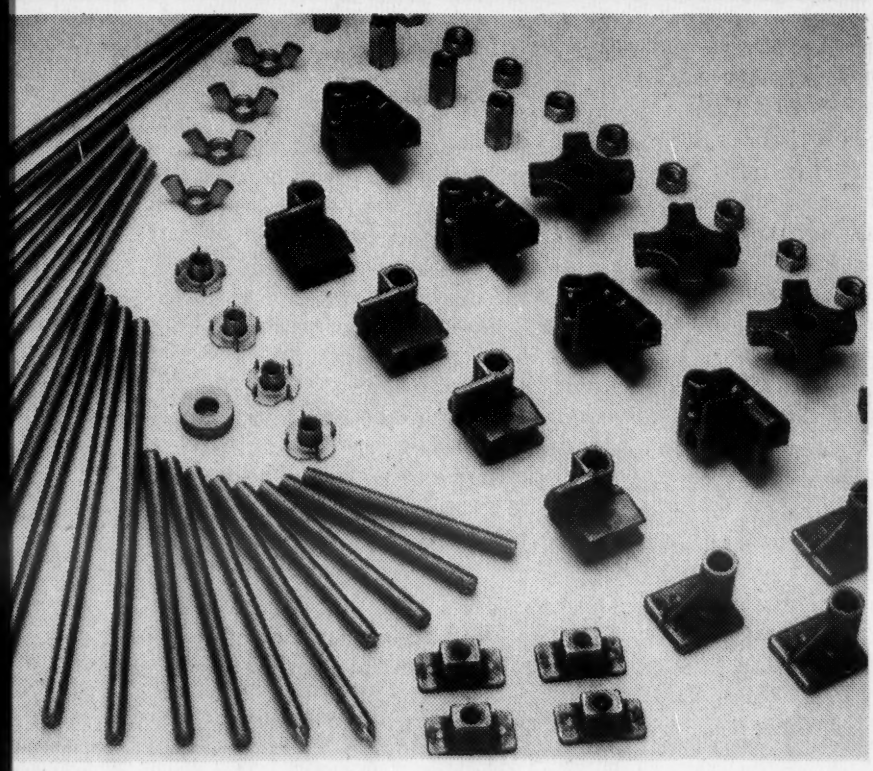
Balldrivers: sets **$7.25** — **$15.50** from Jensen Tools, Inc., 7815 South 46th Street, Phoenix, AZ 85044-5399; 602/968-6231. Catalog **free.**

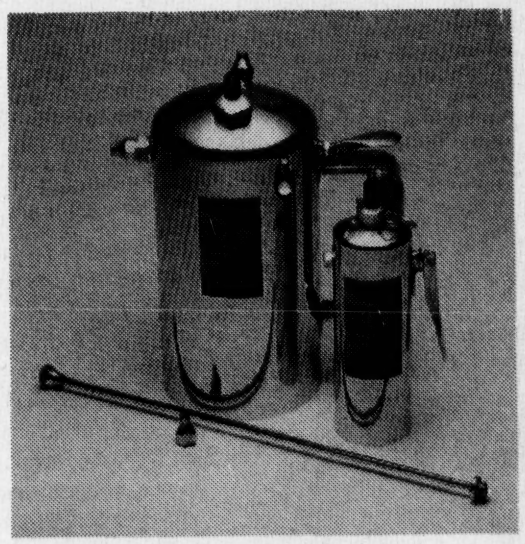
BONDHUS TOOL COMPANY

Inch-Metric Ball End Long Arm L Key Sets

Ball end long arm L-keys make removal and installation of socket screws quick and easy even in tight places. Ball-end can be inserted in screw at angle up to 30° without binding. All sets in indexed case.

Cat. No.	Description	Size/Range	Each
G289B945	7-Piece Inch Set	5/64 thru 3/16"	$7.25
G289B012	12-Piece Inch Set	.050 thru 5/16"	14.50
G289B006	6-Piece Metric Set	1.5 thru 5mm	6.50
G289B900	9-Piece Metric Set	1.5 thru 10mm	15.50



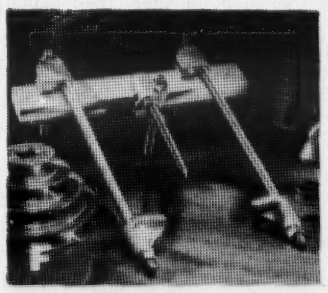


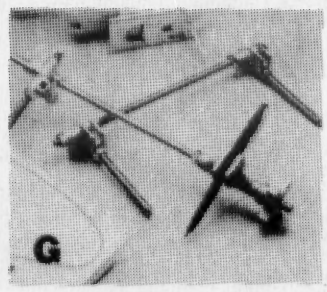
Rechargeable Sprayers

These beautifully made spray cans are refillable with just about any runny liquid except paint and certain virulent chemicals. You then pump up the can with an air compressor or even a bicycle tire pump. I've used mine for many years, mostly for applying rust remover and preventer compounds. *—J. Baldwin*

Sprayers: Quart **$49.95**; 6-ounce **$21.95** from The Eastwood Company, 580 Lancaster Avenue/P. O. Box 296, Malvern, PA 19355; 800/345-1178. Catalog **free.**

Need a handy wheel or "gear" puller? With Maxi-Clamp® you can build your own **(Photo F)**. You can even create your own trammel point compass, beam compass or marking gauge **(Photo G)**.





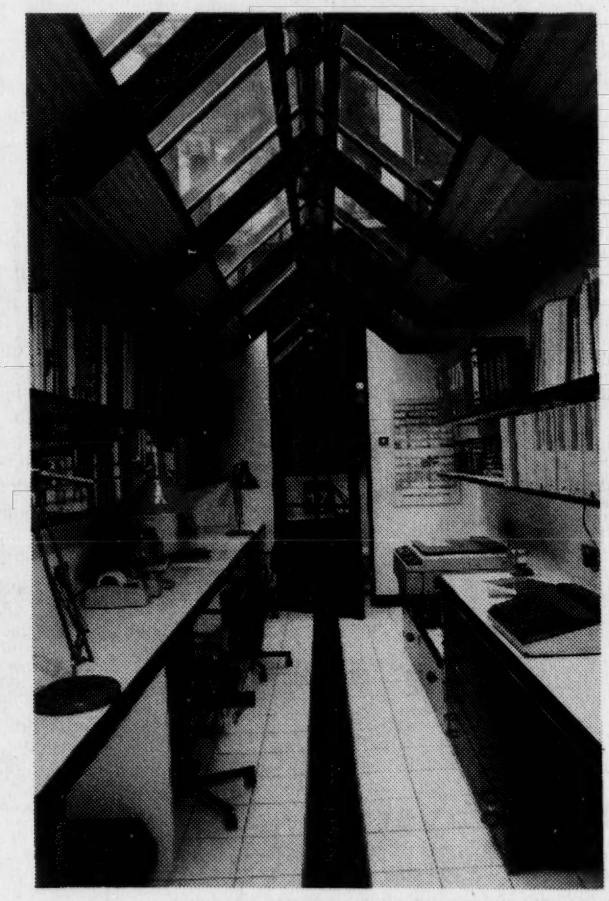
Conran's Living in Small Spaces

Must a small house mean small amenity and a drop in your standard of living? Of course not, but that glib answer must be tempered with imagination and elan, as this book demonstrates so well.

Here's a rousing collection of clever and mostly affordable interior schemes. The password is elegance. *All nicely shown in professionally done photographs. All proven. All proof that we don't need huge houses. Inspiring and appropriate as we learn to live more lightly on the land.*

—J. Baldwin

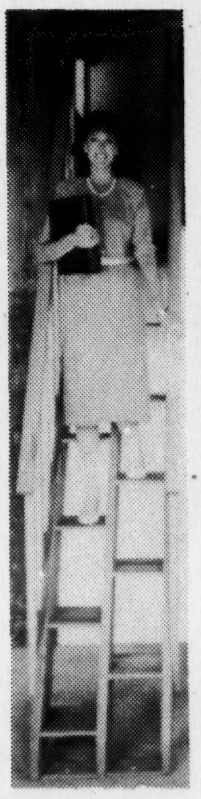
Conran's Living in Small Spaces
Lorrie Mack
1988; 143 pp.
$24.45
($26.45 postpaid) from:
Little, Brown and Company
200 West Street
Waltham, MA 02254
800/343-9204
or Whole Earth Access

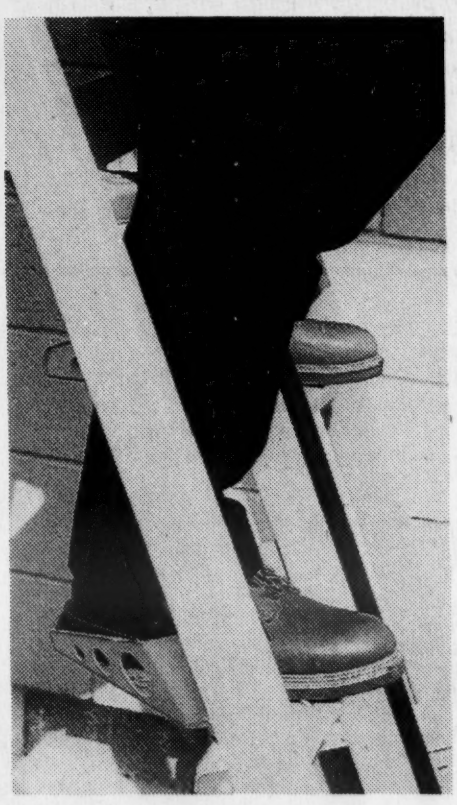


►
With typical small-space ingenuity, the barge's owners have made sure that no surface around the bed has been wasted: a shelf above holds books, a wall-fixed spot provides light, and large lockers underneath offer valuable storage. Housed in an airing cupboard, the hot-water tank at its foot makes this curtained-off retreat especially cosy.

◄
Alongside the flat, an extension built on to the original house had left a long, narrow walled courtyard. By adding a fourth wall and a pitched glass roof to let in the clear northern light, this was turned into a studio from which one of the occupants operates a small design consultancy. Warmth is provided by an underfloor system through the slim black grill running down the centre. Since the door at the end leads to an extra bathroom, its glass panels were replaced with pieces of mirror to give a similar effect.

If tins and packets continually get lost in the murky reaches of a deep, narrow cupboard, replace this with pull-out larder shelves, whose contents are always kept neat and easy to see.





The Lapeyre Stair

Alternating-tread stairways were common in colonial houses where space was scarce, but most people today haven't even heard of the idea much less seen one. Advantages: they take 50 percent less floor space; the treads (that's the part you step on) are much deeper to better support your foot; the railings are much higher on your body, making falls less likely. I've built many of these, and they work just fine even if you aren't particularly spry. This company makes them for you in metal or wood, shipped knocked-down for assembly on your site. Custom fit, too. (Be sure and check your local codes before ordering.) The design is a true problem-solver.

—J. Baldwin

The unique alternating-tread design provides more useable tread area than conventional stairs or ladders at the same angle of incline.

•
Think about the way you ascend and descend conventional stairs. Your right foot uses every other tread on the right half; your left foot uses every other tread on the left half. As you descend the stairs, you must step out and over the next lower tread. That unused, in-between tread is an obstacle — it covers part of the next needed tread and obstructs direct foot movement. Lapeyre Stair does not have an in-between "obstacle tread." As you step down our unique half-tread design, your feet travel a straight, direct path, giving you more effective tread space and firmer footing with less slip vector.

The Lapeyre Stair: Wooden stairs **$320 — $940**; aluminum and stainless stairs also available. Lapeyre Stair Inc., P. O. Box 50699, New Orleans, LA 70150; 800/535-7631. Catalog **free.**

Home Mortgages

Last year I wanted to buy a house and I found out that, in addition to a lot of money and a taste for paperwork, I needed to figure out what type of mortgage I felt most comfortable with.

A generation ago there was one basic mortgage — a 30-year term with a fixed interest rate. Today there are dozens of choices. These books will help you find your way through the forest of fixed-rate loans, ARMs, GEMs, FHA loans, 15-year terms, bi-weekly mortgages, etc.

There's a new wrinkle in the home loan biz every week, but ***The Mortgage Manual*** *provided me with a clear and sensible overview of my choices. If you don't know where to start, start with this.*

The Common-Sense Mortgage *was my source for strategy and tactics. If you're even thinking of "creative financing," or you just want to learn about potential pitfalls, then read this book cover-to-cover. Think of it as an investment in peace of mind.*

Lastly, if you are like me you will go through a hundred different purchase scenarios before you reach your goal. Two tools which I used constantly were a basic computer spreadsheet program (much easier than calculator, paper and pencil) and my copy of ***Monthly Interest Amortization Tables****. Adjustable rates made figuring the real lifetime costs of a loan difficult, but this inexpensive book let me play "what if?" games late into the night.*

—Keith Jordan

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Prepaying a Mortgage

One of the most creative ways to rapidly pay off a home or at least to build equity quickly is by taking out a 30-year conventional or government-backed mortgage, then prepaying the loan. Every dollar of the prepayment would go to reduce the principal of the loan.

It seldom occurs to homeowners to pay off their mortgage ahead of schedule, because they can't imagine that an extra $50 a month makes much of a difference. But even a small increase in payments that goes exclusively to reduce principal can put thousands of dollars in your pocket over the long term and reduce the length of the mortgage by years.

Tell the bank what you're doing (and be sure that prepayments won't generate a penalty), then include an extra amount in each mortgage check marked "for reduction of principal."

The beauty of prepayment is that you don't have to lock yourself into the larger payments that a shorter-term amortization schedule would require. If you're not sure that you can handle the burden of large monthly payments on a 15-year loan, take the 30-year loan and try to make regular or lump sum prepayments whenever possible. But you are free to choose when an extra payment fits into your schedule.

—The Mortgage Manual

The Mortgage Manual
Don DeBat
1986; 154 pp.
$5.95
($7.70 postpaid)

Monthly Interest Amortization Tables
1984; 283 pp.
$5.95
($7.70 postpaid)

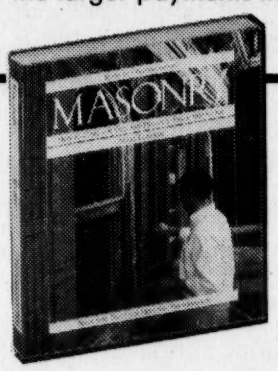
Both from:
Contemporary Books, Inc.
180 North Michigan Ave.
Chicago, IL 60601
312/782-9181
or Whole Earth Access

The Common-Sense Mortgage
Peter G. Miller
1985; 285 pp.
$7.95
($9.45 postpaid) from:
Harper & Row
2350 Virginia Ave.
Hagerstown, MD 21740
800/638-3030
or Whole Earth Access

Masonry

Mountains slowly get smaller, and so do stone and brick buildings. Little by little — a crack here and a chip there, spalling, freeze & thaw, acid rain — the surface and ornaments wear away. The whole business sort of reminds me of the frustration and rewards experienced by those who care for wooden boats; essentially a lost cause, but worth the effort in order to enjoy the wonderful and often irreplaceable handiwork a bit longer.

This book is not a do-it-yourself manual. Its main purpose is to familiarize you with the procedures used by skilled experts to diagnose, prevent and treat problems. If a stone or brick building is part of your responsibilities, your homework starts here. *—J. Baldwin*



Masonry
(How to Care for Old and Historic Brick and Stone)
Mark London
1988; 208 pp.
$12.95
($15.95 postpaid) from:
Preservation Press
National Trust for Historic Preservation
1600 H Street NW
Washington, DC 20006
202/673-4200
or Whole Earth Access

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Poultices, or leaching packs, involve spreading a chemical paste on the masonry to loosen the dirt or stain. The packs then draw out the dirt as they dry, thus avoiding the reabsorption of dissolved material into the masonry. This technique is used to remove stains from porous masonry and for more general cleaning problems inside buildings where it is impossible to use water.

Poultices may be applied successfully to remove stains such as oil, tar, plant materials (lichens and algae), graffiti (including spray paint), metallic stains such as iron and copper and occasionally some types of salt deposits (efflorescence).

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Weathering is particularly pronounced on sharp corners and highly carved or projecting architectural details, where it results in granular and rounded surfaces. With sandstone, the grains of sand stand above the surface and can be rubbed off when touched, indicating that the cementing material has been lost. Acid rain can increase natural weathering rates, resulting in noticeable softening or loss of masonry details, particularly with acid-soluble, carbonate stone. Weathering can show a uniform pattern across the surface or can produce varied patterns.

Weathering of marble.

Poultice. **Absorbent material is applied to a stain; the area is covered; the poultice is scraped off with a wooden spatula and the surface is rinsed with water.**

TALES FROM TWO

With a like-mindedness primed by psychedelics, the '60s set about constructing communes. Most of them didn't last. The yearning for a small community hasn't left, though. A persistent few are trying intentional small-place living in other places, and a brave few are trying it again in a no-place kind of place. They are searching for a communion of mind primed by electronics, a slippery unity at once democratic and intimate. One of the discoveries to come up from the search is The WELL. One of the experiments the search began with was The Farm. Between the two is kinship.

The Farm was a do-it-yourself civilization hacked out of the Tennessee woods. It grew its own lingo, and transformed technology like CB radio and satellite TV into small-community tools. At their peak, Farm folks connected 1,400 lives into a "mental nudist colony." Although Farmies became experts in communication, they found they couldn't sustain living together under the guru-heavy society they had programmed. Most of them disbanded in the early '80s. Three of them regrouped in the offices of Whole Earth to reconstitute what they liked best about the Farm by hard-wiring it into The WELL. Within the virtual Farm of The WELL, 1,400 new members bare their minds, nurture another new lingo, and try to hook together into a small (it fits into a closet) community. Three and a half years old now, The WELL has become a way to live in *a commune without having to live* on *one. It's not a substitute for a neighborhood but an affirmation of what it should be.*

One of the most popular meeting places on The WELL is the "True Confessions" confessional box. Some of its most-read testimonies have been accounts by the WELL managers of their former lives in a former community. We have downloaded and illustrated them with pencil renderings from old Farm photos. John Coate begins by introducing The WELL and its caretakers, and then he and Cliff Figallo tell stories about the community of the Farm, which take place within the village called The WELL, and which are really about making a place better than either. —*Kevin Kelly*

A Village Called The WELL

by John Coate

I WORK AT The WELL, Whole Earth's online computer conferencing network. The WELL itself sits in an air-conditioned closet at the Whole Earth office. A bunch of phonelines come into the building and connect to these modems, which in turn are wired up to a Vax computer. There's a modem for each phone line. We can handle up to 23 callers at a time, which we often do with over a thousand people logging in each month. The Vax is about the size of a large dishwasher. When people visit us they like to go in and look at the equipment. When you see the lights on the modems flickering you know that conversations are happening. Minds are meeting.

Personal computers are amazing communication tools. Put a computer together with a modem and you can converse simultaneously with several people, collaborate on writing projects, find work, gather and refine ideas, get technical updates, swap some stories, argue politics, and get a recommendation on a good restaurant and movie without getting up from your desk. Online conferencing networks can be both a place where you meet people — like a neighborhood pub — and a tool for gathering and storing information.

I wear a few hats here. Marketing, publicity, customer service, phone support, party host, and welcome wagon to name a few. You could say that my job is to keep in touch with what's happening on the WELL and then present it to anyone who might be interested.

As I sit at my desk in The WELL office shuttling between conferences, doing mail, writing pieces like this one, and talking online as well as on the phone to new users, I check to see who is logged in every few minutes. I know most of the names. Because we have had a lot of social gatherings I know many faces to go along with the names. Many have become my good friends.

Sometimes when I'm working I feel like I'm in the wheelhouse of a big Mississippi riverboat. On the decks people are strolling and talking as they lean against the rail. There's a casino and parlors and places to eat. Way down below they're talking shop with the machinists. There are regulars and newcomers. Everyone has a unique point of view. Sometimes it's choppy, but usually it's steady as she goes.

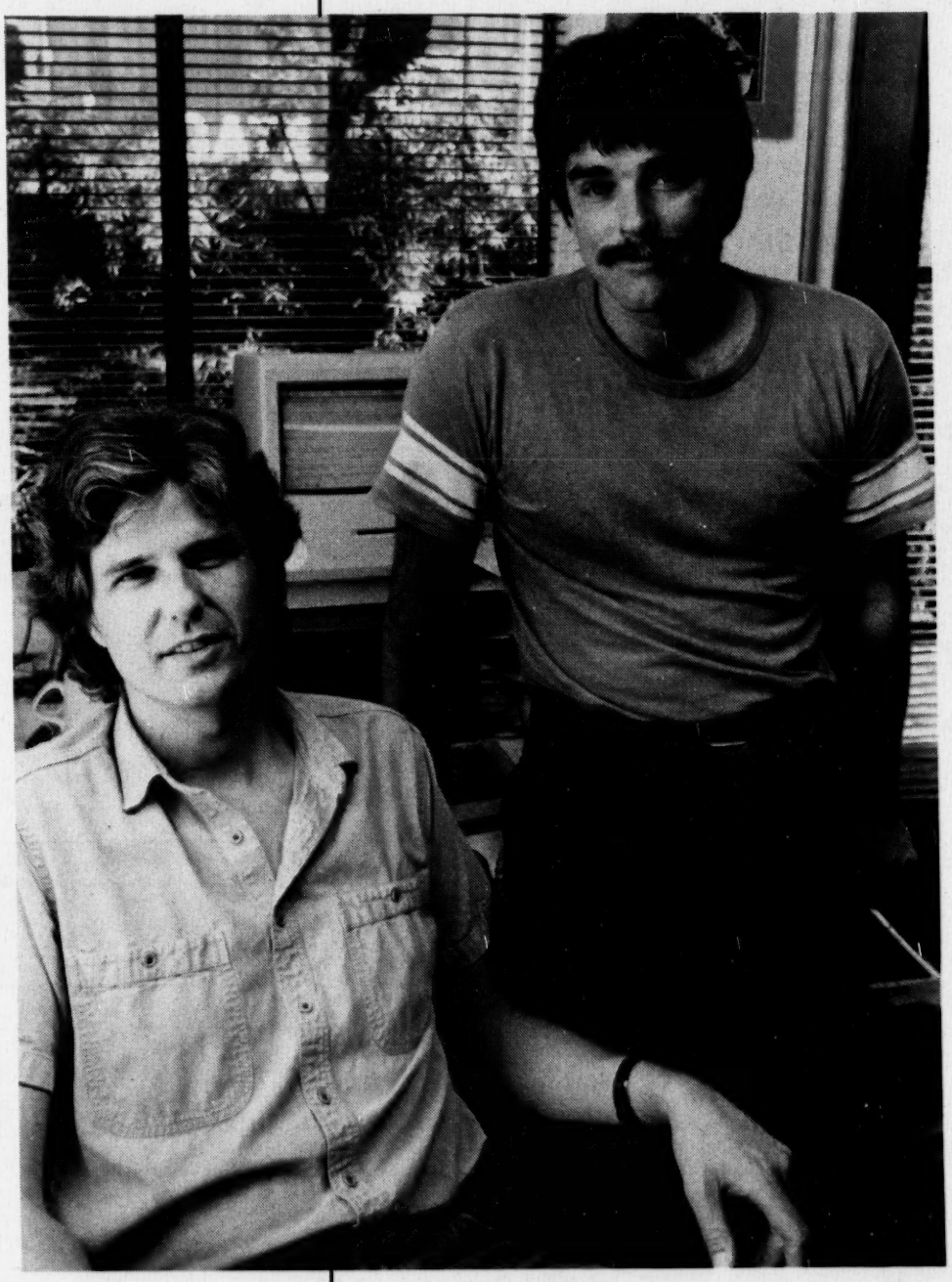
Although there is a lot of useful information stored on the WELL,

COMMUNITIES

THE WELL AND THE FARM

like in a library, it is through conversing in conferences, e-mail and real-time that the fabric of the community is knit.

There are over ninety WELL conferences. Some are computer-specific, some are technical, and some consist of people throwing out their ideas, telling their stories or arguing social and political issues. After talking with people about all kinds of different things, over time you get the feeling that you know that person even if you have never met face to face.



You hear the word "networking" tossed around all the time these days. That can mean a lot of things. It could be people meeting to swap business cards or otherwise connecting with the idea of doing some sort of business or a project together. But before you decide to work with someone you may want to find out if they have a sense of humor or if they have cultural or political values that are compatible with your own. Or maybe you're just looking for some good conversation. So you cruise around to different conferences and you find out what people think about things. The information moves "horizontally" among the peer group of the participants. Anyone can start a discussion topic in a conference. Topics can be linked between different conferences. After a while I think the word "community" begins to describe what goes on better than "network." In a community, the interactions are ongoing. You run into some of the same people every day. Over time, professional and personal interaction can overlap. There becomes a sense of place to it. It often reminds me of an electronic Greenwich Village. Logging in can be like going down the street to check the action.

We don't have a lot of rules; we manage The WELL in a very low-key style. It really can't be done any other way. For one thing, The WELL's customers are bright and independent. A heavy management style would get us labeled as the local brain

police. We say that you own the words that you write. That means that you take responsibility for what you say and other people can't steal your words any more than they could if what you said was in print.

The conference hosts are the keystone of the WELL organization. Every conference has a host. That word was very deliberately chosen. Public online conferences are a lot like ongoing parties and someone has to make sure there's ice in the cooler, food on the table, continuity in the discussions, and good general organization. As Matthew McClure puts it, "it was our idea in the beginning that The WELL could turn into the electronic equivalent of the French salons during the Enlightenment period. Each salon would need a "host" who could make people feel comfortable and bring out the best from each guest."

Also there sometimes arises the need to bounce someone. WELL conference hosts have the power to censor remarks and even to ban someone who is too much of a nuisance. It's a judgement call and thankfully it rarely happens. But like in any gathering where people focus their attention, it is possible to be more concerned with grabbing and holding the attention of the group rather than concentrating on the content of what is said. Usually when someone does that, other people in the conversation will try to talk it out, not wanting to purge someone, but rather hoping that the loquacious offender will make some modifications so the dialogue can continue.

CONFERENCES ON THE WELL

Best of the WELL (g best)

Business - Education

Classifieds (g cla)	Consultants (g consult)	Consumers (g cons)
Design (g design)	Desktop Publishing(g desk)	Education (g ed)
Homeowners (g home)	Legal (g legal)	Library (g lib)
Stock Market (g stock)	The Future (g fut)	Translators (g trans)
Work (g work)	Word Processing (g word)	

Social - Political - Humanities

AIDS (g aids)	Archives (g arc)	Berkeley (g berk)
Central America (g centro)	Drugs (g dru)	Gay (g gay)
Health (g heal)	Irish (g irish)	Jewish (g jew)
Liberty (g liberty)	Mind (g mind)	Men on the WELL (g mow)
Myths (g myth)	Nonprofits (g non)	Parenting (g par)
Peace (g pea)	Poetry (g poetry)	Philosophy (g phi)
Politics (g pol)	Psychology (g psy)	San Francisco (g sanfran)
Sexuality (g sex)	Spirituality (g spi)	True Confessions (g tru)
Words (g words)	Whole Earth (g we)	Women on the WELL (g wow)
Writers (g wri)		

Arts - Recreation - Entertainment

ArtCom Elec. Net (g acen)	Audio-Videophilia (g aud)	Comics (g comics)
Cooking (g cook)	Crafts (g craft)	Eating (g eat)
Flying (g flying)	Fun (g fun)	Games (g games)
Gardening (g gard)	Jokes (g jokes)	MIDI (g midi)
Movies (g movies)	Motorcycling (g ride)	Music (g mus)
On the Air (g ota)	Pets (g pets)	Rasslin' (g ras)
Science Fiction (g sf)	Sports (g spo)	Television (g tv)
Weird (g weird)		

Grateful Dead

Grateful Dead (g gd88)	Deadplan (g dp)	Feedback (g feedback)
Tapes (g tapes)	Tickets (g tix)	Tours (g tours)

Computers

Amiga (g amiga)	Apple (g app)	Atari (g ata)
Commodore (g com)	Computer Books (g cbook)	Art & Graphics (g gra)
CP/M (g cpm)	Desktop Publishing (g desk)	Forth (g forth)
HyperCard (g hype)	IBM PC (g ibm)	Laptop (g lap)
Macintosh (g mac)	Mactech (g mactech)	Microtimes (g microx)
Programmers (g pro)	Programmer's Net (g net)	Unix (g unix)
Word Processing (g word)		

Technical - Communications

Info (g boing)	Media (g media)	Packet Radio (g packet)
Photography (g pho)	Science (g science)	Technical Writers (g tec)
Telecommunication (g tele)	Usenet (g usenet)	Video (g vid)
Netweaver (g netweaver)		

The WELL Itself

Deeper (g deeper)	Entry (g ent)	General (g gen)
Help (g help)	Hosts (g hosts)	System News (g news)

ONLINE conferencing is talking by writing. You set up your context, get to the point, and get out. Because it's a conversation between sometimes fairly large groups, you don't want to "dominate the rap" and you don't want to be repetitive. You have to remember that people are looking at computer screens, which seem to put unique demands on people's ability to focus on long-winded pieces. If your "posting" runs longer than one or two screen lengths, it had better be pretty interesting. And you will hear from people if they think you ramble too much.

The flip side of that, though, is that if you have a good story to tell or enjoy quality repartee, or can lay out and quickly back up an argument or insight, then the chemistry can be there for a kind of ad hoc think tank that has soul and is fun. We talk about everything from war and law, music, work, birth, death, where this "info age" is going, and AIDS to online talk shows, tales of past experiences and exploits, online gift notifications (better known as Pokeybux), thoughts on human relationships, bugs in the latest version of PageMaker, reports of WELL weather, the Maddog Improvement Society, and critiques

of the latest Grateful Dead show.

Ah yes, the Deadheads. There's plenty of action around the Grateful Dead. The Grateful Dead Conference is The WELL's largest, with people logging in from all over the country. It's mostly good talk, but some online collaboration happens too. Once we designed a WELL t-shirt together. We chose the design, had someone collect the money, and another person got them printed up.

The WELL is a confluence of social and cultural elements. Similar to Chesapeake Bay, where nine different rivers merge, The WELL's character comes from hackers, writers, artists, Deadheads, knowledge workers, fugitives from the counterculture, educators, programmers, lawyers, musicians, and many more.

The Info conference, for example, is regularly visited by a magazine editor, a college journalism teacher, an author, a consultant to a state assembly committee, an info-age muckraker, a retired army colonel turned info-age pioneer, a manager from Pacific Bell, a librarian, and members of the Congressional Office of Technology Assessment. We evaluate new laws, discuss government hearings, and theorize about the forces at play that are attempting to capture their piece of the action as these new information tools become more widespread. It's exciting, relevant stuff because it has to do with basic Constitutional freedoms. In these discussions, age, race, or culture don't matter. Your contribution to the discussion is the only thing that counts.

"WELL" STANDS for Whole Earth 'Lectronic Link. It's the collaborative brainchild of Whole Earth's Stewart Brand and Larry Brilliant, best known for his work with the SEVA Foundation and as head of Network Technologies (NETI). Whole Earth and NETI each own half of The WELL. After spending time working on projects through the EIES network, Stewart and Larry conceived The WELL in 1985 as a place where a variety of people could meet online without spending an arm and a leg. Early on Stewart said The WELL is "the kind of thing coffee shops were supposed to be about, but are pretty hard to find these days."

Matthew McClure was the first administrator of The WELL. He had just the right combination of technical and community experience to make The WELL float as a bootstrap operation where the early users helped plan and design their new meeting place. At times it was almost like a barnraising.

In the summer of 1986 Matthew was ready to move on. He hired Cliff Figallo and myself to take his place. All three of us had lived together for a decade on a very large intentional community in Tennessee called the Farm. Having worked and lived with a huge number of people with every imaginable attitude gave us a balance of sensitivity and toughness that we knew would translate over to this online meeting of minds and personalities. Yet as new managers of The WELL it was essential that people trust us.

At this same time, Tom Mandel and Howard Rheingold created the True Confessions Conference. True Confessions is a place where people tell their stories — funny, sad, scary, deep, momentous. It was an instant hit that did something more than just interest people. Everyone who told something about themselves became a more identifiable human being. We began to feel like we knew each other. And for Cliff and me it was a perfect way to explain where we had come from.

At first I didn't say anything at all about the Farm. I talked about driving trucks, and tripping, and hopping freights. I thought that if people knew I had lived on the Farm all those years that they might get a preconeived idea of me based on that.

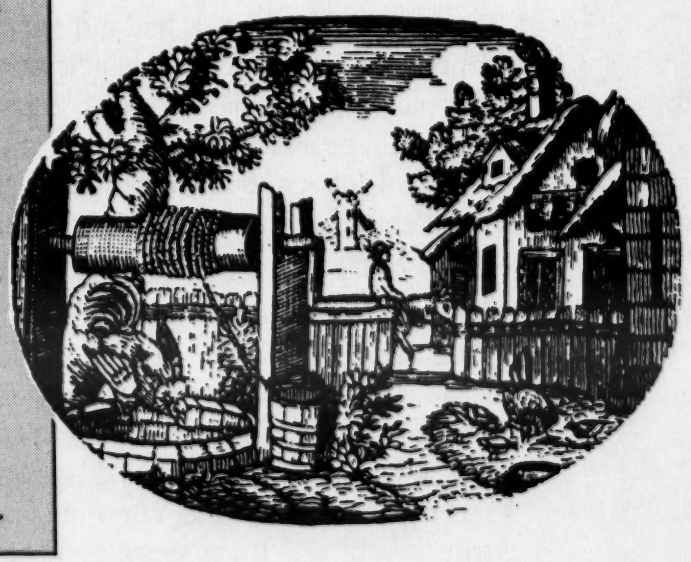
But after a while I realized that a lot of why I was working here was because I had lived there. And that a lot of the things I had learned about group dynamics came from my experiences on the Farm. So when Tom Mandel started a topic about communes it seemed like a good time to spill the beans.

THE STORIES that follow are excerpted from that topic. They are off-the-cuff reminiscences composed online and entered every few days as topic responses. □

If you can get your computer and modem to dial a phone number, you can log in to The WELL. Usually the default settings that come with the communications program work fine. The WELL does cost money to use but at $8/month + $3/hour the rates are among the lowest in the country for comparable facilities.

Actually, the phone company makes more on this than we do. But we have ways of tipping the balance sheet more in your favor on the cost of the phone call. If you live outside of the San Francisco Bay area you can save substantial money on the phone call by reaching The WELL via the CompuServe Packet System. If you live in the Bay Area, call us and we'll give you tips on cheaper phone access through special local lines. In addition, The WELL is one of the few places where an individual account has full access to the worldwide UNIX community through USENET and UUCP mail.

To sign up, just call 415/332-6106 with your modem and type *newuser* ◄*cr*► at the *Login:* prompt. Or call us at 415/332-4335 during office hours if you'd like more information.



Farm Stories

(From the True Confessions conference on The WELL)

by John Coate and Cliff Figallo

illustrated by Julie Wawirka

THE CARAVAN

John: The holy-man scene was a big part of the action in the late sixties, and in San Francisco the guy who worked the local beat was Steve Gaskin. I first met him when I was 18. He was conducting Monday Night Class at the Straight Theater on Haight Street. Steve was a guy who could trip at an extremely high level and later talk about it in such a way that an entire group could understand simultaneously his descriptions of energy and karma and what he knew about how to trip, which basically came down to how to make good decisions so as to not lose your energy. For a lot of young trippers these could be good reassuring words. It was also like a big study group where we would read and learn and talk about Eastern and Western religion, mysticism, and magic. At first it was called "Einstein, Magic, and God." Along the way Steve went from being just the teacher of a class to a Teacher as in "your guru." He once said, "I started out teaching people how to trip. Then I found out life was a trip. Then I started teaching people how to live."

It was handy that they were held on Monday, because so many people had just tripped the day before and wanted to get a handle on their experience. After awhile these gatherings grew very large with people coming down from the hills plus a core of folks who had a definite student/teacher relationship with Steve, who by then everyone called Stephen.

The first time I went to Monday Night Class Steve talked about all kinds of things I couldn't understand. It was dark in there and everyone would get into this huge arm-in-arm circle and *OM* together like some kind of circular millipede. Too strange for me, but interesting. Later after some hair-raising trips, one of which was spent alone way out in the scrub bushes of Mount Tamalpais, I felt I had to confront something vague and scary that was inside me, like some kind of inner battle against invisible forces. I believed I could win — that I would stick with it until I did. Still, I went off by myself because I figured if anyone saw me they might try to haul me in for a thorazine shot.

Later, around sunset, I'm sitting on a hill, looking out at the fog and the ocean and I'm thinking about what I had just experienced and learned: that I can confront anything that is in my head because I always have my yes and my no just like it says in the Tao Teh Ching. And then my mind slips into a calm state. Calmer than I had ever experienced. The stillness is broken by the thought "no-mind." Then I remembered that it was one of the terms I had heard Stephen say that I hadn't understood. "No mind"? What is that?

So, sitting up there I thought "Ah! No mind . . . !" and I started to understand what he had to say.

In the summer of 1970 Stephen, who lived with his family in a converted schoolbus, was invited on a speaking tour of churches and colleges around the country. A lot of the Monday Night Class (MNC) crowd lived in buses too so naturally they wanted to go along. Pretty soon this trip was dubbed "The Caravan." There were lots of people who either didn't have money, or had money but no vehicle, or whatever and still wanted to make the trip. Steve used to have these people gather after the meeting to work out the details.

Starting a month before the October departure about 70 people met under a tree to pool money. It didn't matter how much you had. It didn't matter if you didn't have any at all. Everyone decided on a treasurer, and put their cash together. There was no voting, just someone who volunteered and looked honest. It was a lot of cash too. Probably eight or nine grand.

I was set on going but I still had to wrestle with something inside. I knew that going on the Caravan would be the Big Bus Trip, but it would also mean making a serious commitment to Stephen as a teacher. I saw it as entering some kind of mobile monastery where I had to leave the wild life behind. "Turn down the stimulus," as Stephen used to say.

I viewed the non-political counter-culture as having two basic approaches to life: Ken Kesey, the Merry Pranksters, and the Grateful Dead on one side and Tim Leary, Richard Alpert, Stephen, yoga, and natural foods on the other. The Prankster/Millbrook dichotomy.

The Ken Kesey/Merry Prankster style to me was doing acid on the streets or in some other very unpredictable place, maybe talking at length with people you've never met before and learning to be tough and glib and fast on your feet. Looking for an edge. The Dead were like that for me too. Jerry Garcia would establish eye contact with individuals and play to them until he got them off. As it is today, they were doing a lot more than playing music. Ecstatic dance. Free mind. These guys represented a wild loose style, one that isn't involved with leaders and teachers. I loved it. I took lots of trips on the streets and went to every Dead gig I could. I used to carry a copy of the "Live Dead" album in my backpack when I hitchhiked. When people would ask me what was happening I would pull it out and say, "this is all you need to know."

So, on what you could call the Millbrook side of this you have Leary and Alpert tucked away at this huge mansion in Millbrook, NY, tripping, getting quiet and still, everything inner-reaching and working the whole Eastern religion aspect where you keep yourself high and together with meditation, or stillness, or certain diets or yogas. *Tibetan Book of the Dead. Zen Flesh, Zen Bones. Bhagavad Gita.* Structure, organization, method, technique, centering.

And I had dug this way of doing it too. As a 15-year-old I attended a Tim Leary lecture at the Berkeley Community Theater called "The Way of the Buddha," where Leary tied the LSD experience to

the Buddha's path of right living and the process of transcending material attachments. It made sense to me. Stephen took this approach more and more too. "Attention is energy," he would always say. He talked about self-discipline and creating good karma, and paying attention to being truthful and correct.

So . . . I'm pacing around Sutro Park on the Sunday afternoon that this Caravan "Bus Family" gets organized having to decide if I was going to go with the Kesey/Prankster/Grateful Dead style or the yogi/teacher/organized-community style. I wanted to be part of a real community. I had hitched all over the West Coast looking for a community that felt right and this group had the right mix of people and purpose. I almost moved to Big Sur, I almost moved to Portland, but I decided to go with Stephen.

That decision made me more of a follower than I had been and I was aware that there was a definite trade-off in doing it..

The caravan ended up down a dirt road in rural Tennessee staring at the business end of Homer Sanders' shotgun. That was the start of the Farm. The caravan was over. We had landed. The plan was to live there for generations on end. It was no longer a situation where you could turn your bus around or just not show up for the next MNC. It was considered a lifetime commitment and given the extraordinary degree of awareness that everyone had for everyone else's state of mind, if you didn't carry that dedication around with you it was obvious to great numbers of people. And it was a tough thing to fake too! This was "copping to Stephen," and as far as I am concerned therein were contained the seeds for the eventual destruction of the whole show.

The population increased from the start. What you had to do was show up, turn in all your possessions (except clothes and personal stuff), have the right attitude and "cop to Stephen." By the following summer the Farm had nearly 400 residents. In those early days before the thing got huge, you could not only know everyone there, but you also knew "where they were at" meaning that you had a feel for what their ongoing attitude/mental condition was.

Cliff: We made a point of studying other experiments in spiritual community — everything from the Shakers to the early Zen communities. We tried to learn from their mistakes and not repeat them. I guess what we mostly learned from the Shakers was to not be celibate. We believed very much in Life Force and felt, like the Catholic Church, that no artificial means of birth control was cool. So we had an instant baby boom that began on the caravan and continued through the first six-seven years of the Farm's existence. Our homegrown midwives got a lot of practice then. They produced a book called *Spiritual Midwifery* that, for a while at least, was the most revolutionary and widely read book of its kind. We invited people from outside the Farm to come and have their kids delivered there for free, with no need to pay even living expenses. We moved them into our households; they ate with us, worked with us, and pretty much had to adopt all of our ways. During my last three years there, my family took twenty different pregnant ladies into our partially finished home. I think the birthing service was one of the most worthwhile of the Farm's activities, but it did put an excessive burden on our meager resources.

In group living situations, parents didn't have the control over the raising of their children that single families would have. The children were often forced to behave according to the standards of the most conservative adult. I cannot truthfully report that the Farm produced a generation of enlightened young adults, or geniuses, or of permanently self-actualized beings. I think we turned out a typical cross-section of types with the one difference being that they had an experience growing up unlike almost any other. My kids look back fondly on most of that experience, especially on the great camaraderie that existed among the children on the Farm.

NEIGHBORS

John: The Farm was an unusual thing to live next to, especially if your daddy made moonshine or had a fear of God that exhibited itself in spontaneous open arguments with Satan.

Our most noteworthy neighbor was Homer Sanders. He had been the caretaker of the Martin Farm where the Caravan had landed from Nashville. He took a liking to us, and soon we collaborated with him on a sawmill and other projects. He didn't have any teeth and only half of his tongue. It took real training to be able to understand the jokes he constantly told. He knew how to do everything involved with living on that land. A great guy; a living folk hero and genuine moonshiner who had fought it out with every revenue agent in the area.

When we first moved there, of course, we had to hustle to make friends with our neighbors. Other

wise they would have shotgunned us right out of there and burned the place to the ground. Since we were a religious group we decided to get into religious dialogue with the locals, matching our patchwork eclecticism to their Christian fundamentalism.

Our first foray along this line was when we invited members of the local Church of Christ to come up for three Monday nights and discuss the differences and similarities of our beliefs. The chance to preach to the heathens was something these good folks wouldn't turn down and they came up in great numbers for these meetings. At one point Stephen is telling this whole story about the Tibetan Yogi Milarepa and how he was a lot like some of the Biblical heavies in the way he had to construct these stone houses then tear them down, then rebuild them, each nine times, as a way to become unattached to the fruits of your labor and stuff when this old guy stands up and says, "excuse me . . . now I don't know about this Miller feller, but I do know that the Bible is the word of God for him too!"

Later, as a sort of sociological study, some of us went to a local pentacostal church for a few weeks. They would sing and testify. The preacher got excited, and people started babbling in a different language (although it seemed they all spoke the same one) then they would call the new people to come down and receive salvation. Certainly they wanted to save us!

One of the preachers was our neighbor, Willard Staggs. Now Willard weighed about 300 pounds, and when he put his hands on your forehead and said, "may you receive the love of JEE ZUSS!" it would knock some of the people right on the floor!

Afterwards, some of the people that we knew there, including the main preacher, Johnny Prentiss and his wife Betty, surrounded a couple of us and really lit into us. "Don't you know the things you believe are wrong?" "What will your children do when you condemn them to an afterlife of hell?" I knew it would be my last visit to the Summertown Covenant Church.

But soon, they set up a revival tent right outside the gate for a week and had these noisy revivals every night. I couldn't resist checking it out one more time. When I walked in the tent there was Willard standing there almost in a trance, sweat pouring off his head, having a standoff with Satan. He kept saying, "When you see Satan like I see Satan, the only thing you can do is to look him straight in the eye. You look him in the eye and you say 'Now you get out of here Satan. You just get out of here right NOW! RIGHT NOW RIGHT NOW RIGHT NOW!!!' " I thought the guy was going to explode. Later they called up Woody, another neighbor who had said that he was called to preach while up in the firetower the other day. "All right! Brother Woody's going to preach to us!" So Woody steps to the front and is so struck with the heaviness of preaching his first sermon that he freezes at the pulpit. Everyone chants, "Preach, Woody, preach!" and every time they say it he gets stiffer. His hands grip that pulpit so hard it nearly cracks. He opens his mouth and he looks into the eyes of his friends and neighbors and he can't say it.

So Willard gets back up and says, "All right Brother Woody. We'll get it next time. I think we need a song now. Let's all sing Amazing Grace. I hear you farm people like Amazing Grace."

OUR MARRIAGE

Cliff: Psychedelics are good for envisioning the possible. In relationships, they tend to dissolve the ego that keeps people from letting down their defenses. "Dropping your thing" was an act of selflessness, and extending the visions of the psychedelic world into the straight everyday world was one of the foundations of Stephen's teachings. Entering into a spiritual marriage was seen to be one of these extensions, and Stephen had gone an extra step by marrying his marital couple with another married couple. The stakes were higher; the commitment increased exponentially. Many of his closest friends and followers emulated this example, marrying into double-couple "four-marriages," and the creation of this class of spiritual royalty was a major force in the early history of the farm.

Upon arriving in Tennessee, Anita and I started spending time with another couple. Leigh had been with the Monday Night Class scene for a while, and was not shy about eye-vibing. He could make it heavy for you, make you tingle just staring back at him. But as intense as it felt with him, it felt that comfortable with Jean, Leigh's wife-to-be. Then one night, after sipping peyote tea all afternoon, the magic happened. Staring into each others' eyes, we came to some transcendant place where we opened up completely to each other, all four of us. Not for long, but unmistakeably. Together, we thought, "This must be it!" and "Why the hell not?" We stayed up the entire night mindblowing on what we felt destined to do because of this vision.

Next day, we went visiting. Dropped in on Stephen. Entering his bus was like entering a Bedouin sheik's tent. Stephen looked at us, eyebrow cocked. Skeptical. But after cursory questioning, he gave us a nod of approval. We went to visit Aaron and David's (four-marriages were called by the male's first names) bus. They had been trying unsuccessfully to start it for three hours. We sat down in the bus, Aaron turned the key, and it started. It was proof! We were packing kilowatts of energy!

The next two weeks we spent on the road as the Caravan traveled looking for a home, and the jealousies began to come out. The mistrust, the lust, the feelings that appear when you aren't hanging out in psychedelialand — all started taking over. We would go to other four-marriages and ask for help. And they were having as bad a time as we were! I came back to the bus one night and found that Leigh had discovered my stash of leather boots and clothing, and buried them! What the hell?

By the time we got to the Martin Farm where we first settled, we were all nutty as fruitcakes. Anita disappeared into the woods with her sleeping bag after threatening to take our bus and leave. The rest of us went to Stephen, who pronounced us Not A Real Four Marriage and recommended that we get our individual couples together again.

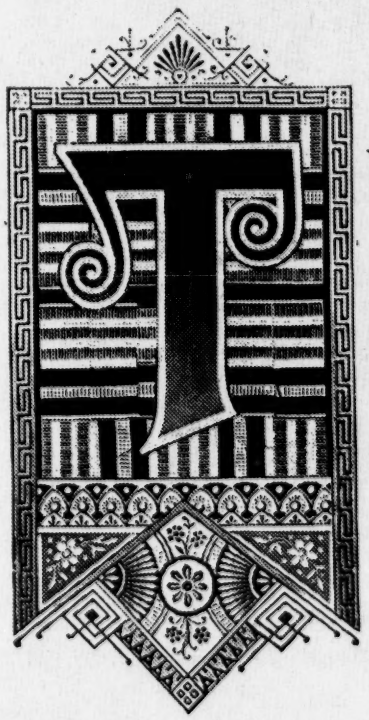
Over the next few years all but two, of what once were maybe twelve, four-marriages dissolved. In some cases, the couples traded partners. In others, one of the couples fell apart. In all cases, the tripping was intense through the whole relationship. Many kids were born of these crossed interrelationships, and in a few cases at least, close family-like feelings remain to this day.

For me, it was a brief but incredible lesson in the dynamics of intimacy. It pointed out flaws in my relationship with then-girlfriend, soon-to-be wife that I should have heeded, but didn't. (Cliff-and-Anita and Leigh-and-Jean are all divorced now.) It was like having someone throw you four flaming torches and tell you "Juggle, Sucker, Juggle!"

Sexually speaking, the Farm operated on the assumption that the Basic Unit of Mankind was the heterosexual couple. This philosophy left little room for out-of-the-closet gays, and caused extreme identity problems for singles in general. There were some gays on the Farm, but there was so little action that they didn't stick around for long.

The sexual path we supposedly followed was Tantra. Lovemaking was considered an important practice for couples to follow not just as the procreative act, but as a healing exercise for the body and for the relationship. The problems arose when the protocol of making love became a part of the dogma. One of the catch phrases that came into being was, "The man steers during the day, and the woman steers at night." God, did that put sand in the vaseline! There is nothing that does more to ruin the magic in bed than self-consciousness. The aim of all of this, of course, was to enhance the sexual act for the woman and to extinguish the old stereotype of "Wham, bam, thank you, ma'am" in the man. The mistake was in allowing it to become intertwined with the religious teachings. For the man, moving a little too much or too fast or initiating lovemaking could be grounds for censure. It became public knowledge who some of the more stubborn males were.

In the end, all of these restrictions did nothing to slow down our birth rate. We were also champions of natural birth control, and had taboos against all artifical methods. In their place, we developed the basal temperature/cervical mucus method which could be very effective, if you were very disciplined. Not many of us were at that time, and it took several children for most of us to either catch on to the method, or to cheat and buy rubbers anyway, or to give up lovemaking altogether.



URN IN YOUR GUITAR!

John: There was a fair amount of pressure to get married, and if you were single, you basically had to fall for someone before you could get physically involved at all. A tough yoga for someone coming from the "free love" scene. I was a single guy at the time and was actually trying pretty hard to keep my hands to myself, as it were. I became very attracted to a single mother whose husband had recently split. She lived next door and I cut her firewood for her.

We were friends. Good friends, but nothing really serious and certainly nothing physical. Still, there was a pretty strong charge. But Stephen had gotten the word that I was "going after" this vulnerable single mother as if I was some kind of amoral wolf. One day when I bumped into him out in front of the main house he said to me in a very loud voice that was easily heard by the twenty-five or so people close by, "I'm taking you out of the band. Turn in your guitar. I heard what you're doing. You think you're this nice guy, but you ain't a nice guy. You're

Jack the Ripper. You're a (now yelling) SON OF A BITCH!!! You have the morals of a snake. Now get out of here!"

Tough stuff to hear, and I was so intimidated that I couldn't come up with the words to defend myself, or at least discuss what was fact and what was hearsay. I acted almost like I deserved it or something. I knew if I really argued with him I would likely get pitched right off the place. To a reasonably confident twenty-one year old guy it was so deflating. I was "busted." Later I noticed that many people started to treat me differently, less friendly, no longer the hotshot guitar man, but someone almost to be pitied for his spiritual shortcomings.

So why did I stay? Because these were my people. And I felt that I had been as high as anyone there and I wasn't going to walk away in shame. So I stuck with it. I joined the motor pool full time and dedicated myself to becoming a competent hard worker.

When you got "busted" like that it really put you back to square one. I buried myself in my work, often working late into the night. I avoided a lot of socializing and dropped out of the music scene altogether. See, it was different playing there than anywhere else. You knew everyone in the crowd, and you knew that they were not only grooving on the music, but were also appraising the quality of your consciousness. That was why I preferred to play off the Farm in those early days. Nobody knew you and they expected you to give them a show. On the Farm, if you let go in the wrong direction, your style could be interpreted as an ego thing, which was what you were striving to avoid. I didn't get into another band there until two years later, after things had loosened up.

We were a "truth church." "Tell the truth and fear no man." This can get pretty hairy sometimes. After the Caravan, we were on our way back west in our bus when we stopped off in Salina, Kansas, to visit a friend.

While the bus was parked in front of her house, two Salina cop cars stopped and instructed Joel, who was onboard, to go in the house and tell us to get into the bus and follow them down to the station. No special reason was given. They apparently didn't see the need for one.

When we got there, we parked the bus and went inside where we all (there were ten of us — five men and five women) were sequestered in a room. This very burly detective guy with a butch cut came in and said, "Ok, I want to speak to all the men, one at a time." I was the last called. As each of the other guys came back in the room I asked in a whisper, "Did he ask about the dope?" Each time the answer was no.

I don't know why really, but when he interviewed me, right away he asks me if we do drugs. I said, "I smoke grass." Then he asks, "do you have any grass on your bus?"

Now when we left Sausalito, we had a kilo of grass and by this time we still had about a pound left, stashed in a compartment.

In that fraction of a second before answering, I thought, "If I lie to him and say no, then they're going to tear our bus apart piece by piece until they find it and we're all going to wind up in Leavenworth."

So I gulped a little and said, "Yes."
"How much do you have?"
(Gulp again) "A pound."
"OK, when we get through talking, I want you all to take me out there and hand it over."

I'm thinking we're all busted for sure now, but when we let the guy on our bus he sat down, looked all around at this mobile piece of Haight Street with all its physical and astral furniture done up in neo-Sarah Bernhardt, got a totally different look on his face and just said "Wow" softly.

I gave him the bag of smoke, all the while answering his questions about our lifestyle and values. Then he said, "Well, I'm sorry, but I'll have to keep this. But y'all can go."

So I guess it's true, folks, that the truth really can set you free (sometimes).

Cliff: We were very much into Truth, and at times we wielded it on others like a bludgeon. It was for their own good, of course, but it felt *so good* to lay a big fat TRUTH on someone. Almost as good as it felt bad to have one laid on *you.* Some folks were "tennis ball eaters." You would serve up your best, most compassionately worded explanation about how and why they were being assholes, and for a return you would get some lame reply that sounded like they deliberately missed the point. That was frustrating. Expecially when you were staying up until 2:00 a.m. just to "get into their thing."

John: Yeah, that was the other kind of truth-telling. "Get into your thing." I think that may have been the number one phrase. "We really had to get into his thing last night. But he finally copped to the information." My bus partner, Joel, had his "thing gotten into" the first night we spent on the farm. He told a story about a time we parked our bus out in front of the Capitol Theater in Port Chester, NY, during a Grateful Dead concert. Some of us went into the concert and some of us stayed out there to mind the bus. As Joel related the story, a cop came on the bus while we were sitting around drinking tea. We had just polished off a joint and our dope can was sitting out there with the teapot and cups.

Joel said, "The cop says to us 'I think you're doing something illegal in here' and looks at all of our stuff. Well, our dope can looked just like a sugar can so I sort of manifested the can to be a sugar can and said we were just having tea."

One of the guys we were telling this to stops us and says, "Hold it right there. You 'manifested the can as a sugar can'? That means that even without saying it you faked the truth to the cop. That's kind of living a lie, don't you think? That isn't how we do things here."

I could see that this "truth-telling" business had already gotten pretty baroque in some people's minds.

HE TUMBLER

John: The early seventies was the time when the feminist movement was on the rise. It was obvious that almost every male in America carried around with him certain inbred attitudes that assumed superiority over females. At the Farm we were big on purging each other of all undesirable conditioning and nowhere did people's trips manifest themselves more clearly than in male/female relationships. We were all big on the idea of "ladies and gentlemen." This meant for the men that all traces of macho had to be eliminated. You had to "cop to your lady."

For a while the Farm had a special tent set up where

Stephen sent men with rough edges so that they could bump up against each other with the idea that they would smooth each other out. This tent was called the "rock tumbler" and it was especially common for some guy who exhibited some arrogance to be pitched right out of the birthing of his own child and sent to the tumbler. I lived right across the road from the tumbler and I can recall many times seeing some guy with a half-smile/half-growl on his face carrying a sleeping bag on his way to a month's stint in the tumbler. One of my buddies was Martin and he was especially skilled at ferreting out subconscious attitudes in others and working out with them for hours on end until they would "cop" and make a visible change. I was also not too bad at this activity and quite often in lieu of TV or something I would go visit Martin and sit in on one of the ongoing "sort sessions." Sort session was our term for sorting out all the subconscious attitudes and thoughts that people would have so that all would be understood and we could go back to whatever else we did, which wasn't much it sometimes seemed. My dad came to visit me that summer of '72 and later remarked that he was never at a scene like that where people would "sit down, have dinner, clean up, and then spend the rest of the evening criticizing each other."

Anyway, what follows is my attempt at reconstructing a tumbler sort session. There are five people present, M, J, W, T, and K:

M: So, where you at, W?
W: Me? Nothing.
M: I was wondering if you were still holding or did you feel cool about having your thing gotten into last night? It feels like there's still subconscious sort of hanging in the air. It's in the astral weather.
W: Well, I could dig the information, but the way you came on about it didn't come from a compassion place. Like you're putting blame on me or something because you aren't satisfied with my response.
M: It feels like you're still on a trip. You may be taking blame but I ain't dishing it out. You really haven't copped. I can tell from your aura that you haven't copped to the information.
J: There is a pretty murky astral in here. W, what are you in your head about?
T: So, what about the MCP vibes that got you sent here in the first place?
W: I feel that I see where it's at and I've already straightened up. I gotta do some fine tuning I admit. Gotta work on the old square inch. I mean like I want to get straight with my old lady. But I don't need you sticking me with every little thing you say you see.
K: But that's just a verbal cop. I can tell that you aren't coming from a pure place. Too much tight stomach. The colloid's going rigid.
J: Yark! this whole riff is backsliding . . . it isn't enough to just say you're cool about it. You have to give us some. It feels like the old swamp routine. At this rate you're kid's gonna be grown before you ever cop to your lady in a Tantric way.
M: Maybe what you need is a ten-day talking fast so when you come out of it the first thing you say will be a righteous thing instead of these verbal deflections designed to thwart us, which just makes us come on stronger till you cop. It's as above so below y'know.

This kind of thing could go on for days, with each person doing his level best to say the thing that will contain so much self-evident truth that the person in question could just say "OK, you're right! I see it now! I don't want to be that way. Now I have the handle I need." And you know, quite often that actually happened. It's important for people who live and work together to be up front with each other. If there is compassion present, you can rid yourself of a lot of ego junk pretty fast. But "reading your reviews" isn't always easy. It was like getting the barnacles scraped off your hull. Sometimes you had to brace yourself. I can remember more than once dropping over to a house where people were sitting around talking and upon my arrival they said, "Ah! Just who we were talking about! Sit down."

It was like a mental nudist colony. It was a definite flaw in our thinking to imagine that great numbers of people would be interested in that kind of thing.

I know it's hard to imagine these encounter group-gone-wild shootouts having much real benefit, and I know several people who never budged, ever. But others were able to get to the heart of their thoughts and feelings about many things. I seriously doubt that any group can survive without some way of being able to speak frankly and even bluntly to each other without the inhibitions of politeness standing in the way.

We experimented in the early days with having one person be a general labor coordinator. The first time was when we had this huge sorghum cane harvest. If you didn't have something real specific to do on a given day, you could be drafted to cut cane. Being the coordinator was a tough job, and trying to get someone to drop their plan for that day or week and do something else often resulted in a "sort session." Like this:

M walks into the community kitchen in the morning looking to fill out the crew. B is eating breakfast.

M: Hey, B, how's it going today?
B: Um . . . good!
M: What you got happenin today?
B: Well, I was going to look for diaper pails, then I have to check out some stuff in the junkyard . . .
M: Well, you know, we need some monkeys out in the field today to cut cane. We really need to "Hyah"

to get it done. Feels like maybe you could cut loose of your plan today and help out.
B: Hmmm . . . well, I . . .
M: Don't hold back. You gotta cop to the group first.
B: I'm not, it's just that I was . . .
M: Well, you can't be attached to your plans sometimes.
B: But it feels like you're coming on and leaning on me to do something, when I have to cop to some other stuff.
M: Well, I don't want to put out funky vibes, it's just that we have to cop to what we all have to get behind, you know?

Took real negotiating, getting someone to harvest cane. ►

FARM WATERS

Cliff: When we arrived on the original Black Swan Ranch in fall of '71, we were about 300 strong with just enough school buses and vans and tents to shelter us all. The land came with one ranch-style house, which became the main office, one corrugated-tin horse barn, which served as our meeting hall, and one "line shack" which was an aging wooden building about a mile in from the house. It became the community kitchen. There was dirt road winding down through the fields, and along the ridgetops which branched off from this main cleared ridge there ran remnants of old logging roads. There was one flush toilet, one well with submersible pump by the house, one electric line, and one phone line to the house.

The first Shower House had two sides with about six shower heads in each. Usually, due to the constant need for repairs, only one side was open at a time. Thus, we had completely Unisex bathing facilities. Nothing wrong with that, though. Naked bodies were the least of our hangups. But the visitors! That was another matter. Some of our visitors found the showers to be the best feature of the Farm and would spend hours patiently waiting for their turns. I, for one, didn't mind if they looked at me. Heck, take a good look, fellers. But our ladies and young girls found it quite disturbing, and that pretty much was the reason that the Shower House became a residential unit.

Unless you have spent time washing your clothes on rocks down by the riverside, you probably don't have any more appreciation for the luxury of having your own washing machine at home than I had. We actually did wash clothes in the creeks for a few weeks when we first settled on the Martin Farm. For years I had made it through the week on one pair of Levis and a couple sets of socks/underwear and T-shirts. So, with a minimum of clothing, I could last a month between washer loads. But that was as a college student. Suddenly, working in jungle-like heat and humidity, in the mud, I was having a harder time clothing myself than before. And having children added to the problem.

Our first solution, for the first year, was to visit the local laundromat in Summertown. Now Summertown, in 1971, claimed to have about 600 residents. It had a little laundromat next to its little post office, with about eight machines and four dryers. Once the Farm laundry runs began, instead of maybe a total of 100 local people using the facilities on an irregular basis, 300 additional newcomers were descending on the humble laundromat weekly with more and dirtier laundry than it could handle.

On the Farm end, a weekly laundry run would be organized, and a wild assortment of duffle bags, US mail bags, plastic buckets, flour sacks, etc. would be assembled and loaded into a box-back truck with a rotating crew of "laundry ladies" who would, in exchange for getting a ride into civilization (barely), wash and dry everyone's laundry. The weekly laundry run was one of our first and largest regular living expenses. It wasn't long before the Summertown laundry begged for mercy and we had to make a longer run into Mt. Pleasant or into the county seat of Hohenwald (now know as the Junk Clothes Capital of the World — at least of the Free World).

By the second year, our first wave of babies had arrived and the term "diaper pail" had become a big part of our vernacular. We collected used pickle buckets from the local fast-food stands and personalized them with our names and terms for product differentiation — our family's read thusly: "Figallo Shit" and "Figallo Pee." We were only funded for a certain number of diapers per kid, so after a week, you were ready to get the returns from the laundry. And during the hot summer months, the ol' diaper pails were ready to explode or to walk away on their own when it came time for Laundry Run.

One winter day when I was home with pneumonia, laid out in back of the schoolbus and gazing across the mudflats that served as roads, I spied the approaching Laundry Truck, a refurbished power company line crew truck with an enclosed crew/tool cabin in back flanked by rails and walkways. The diaper pails, full of clean, dry diapers, were lined up along either side of the cabin, contained only by the rails. The truck was preparing to "shoot the bog," getting up speed to somehow make it through the quagmire that had once been a road, to reach the residential area with our clean clothes. They must have hit 40 when they reached the really messy part, sending up twin rooster tails of mud, fishtailing from side to side. Suddenly, the truck hit a solid spot under the slop and leapt into the air. The truck came down with a splash, but many diaper pails remained suspended above as the truck bounded out from under them. They all came to rest in the bog. And I just KNEW our baby's clean, dry diapers were among the unlucky ones. I was home alone and sick, but I had to find out if my fears were true. Picking my way from one solid spot to another, I arrived at the scene of the massacre to find our lowly pail not only in the mud, but upside down in the mud — next to its lid. There had to be a better way.

One of the Farm's personalities was Robert Glesser. Robert was a bull of a guy, and he tended to be more successful working alone than he was working in a group. So, on moving to the Black Swan Ranch, he began to build the Laundromat. He actually got the building together in about a year — a 25′ x 60′ structure with cement floor, floor drains, concrete-block halfwalls and truss roof. He then got the funds together to score our first array of machines. I believe they were Maytag Commercials.

Robert was also the first Laundromat mechanic. He was followed by a long line of men who should all receive medals as the most dedicated and persevering of the technicians on the Farm. It is hard to fit into this limited space an adequate description of the torture and unending wear and tear that the Farm's washing machines endured over those twelve years. We must have gone through hundreds of washers and I don't know how many dryers. We ended up with stainless steel Swedish Industrial washers and two humungous clothes processors which we simply referred to as Brontosaurus. With the Bronto, you could pack your dirty laundry into a special nylon mesh Bronto bag, leave it in a perpetually renewing mountain range of dirty bags, come back the next day, and, God willing, find your clean but wet laundry in a pile under the sign for your neighborhood. I say "clean," but the Bronto never really got your clothes clean. Clean*er.*

If you preferred to wash your clothes in a smaller machine (if you were one of those who cared if your clothes were really clean) or if you had to wash diapers, you had to call in to make a reservation. You would get a number and you had to check in constantly by phone to see if it was your turn. Often I would try to beat the system by lugging my diaper pail to the laundromat at 2:00 a.m. — only to find three other system beaters there waiting for the one still-operating machine to be open. I spent many an hour there reading year-old *Newsweeks* and mopping the floors to pass the time. Sitting up all night with the drone and whirr and clank of the washers while the rest of the Farm (save the night gateman) slept, and the single remaining light bulb glowed over the bare, wet cement floor and with a cold wind blowing outside, I would think of how badly things needed to improve. The laundromat was perhaps our most collective institution, and it was a degenerating mess.

No one had a "job;" we all had "gigs" and worked under "strawbosses." You either "knew where it was at" or you were "on a trip." Part of being on a trip was using too much Farm Jargon, but we all used it and it became a kind of communicative shorthand for us. We could express a lot in a few words when it came to issues of relationship or psychology. Outsiders would hear us in conversation and request translations. The shorthand became a curse, though, because it too easily allowed us to classify each other. In Farmese, we called this "holding someone to a place." The irony was that the foundation of our belief system was that people could change and improve while the language and small-town nature of the Farm often created pressures that kept people in old roles. The ultimate irony may be that Stephen himself was "held to a place" by the expectations of the rest of the community. His early wisdom was still relied on long after the community should have developed wisdom of its own.

HARMA COMBAT

John: Copping to Stephen meant copping to the "Farm agreement" and vice versa. I have seen that power does corrupt and absolute power corrupts absolutely. Everyone I knew who had some power over other individuals got crazy behind that power to whatever degree they had power. Of course Stephen had total power. And he was inclined to surround himself with advisors who over time seemed to much prefer advising to nail banging, hoeing, or wrenching. And he sometimes delegated great authority to single individuals, some of whom were utterly unqualified to handle it.

We were trying to be tribal. To get back to something that white Euro/American culture had lost. For a few years we felt like we had at least begun to achieve it. And compared to anything we had seen in American suburbia I think it was true. It didn't last long enough for there to be great traditions to hand down through the generations, but the closeness was pretty extraordinary too. That's what all that "getting straight" and "sorting it out" was about. Trying to get real close real fast, so we can get on with the trip. We thought that if there was something you felt about another person that didn't feel right, that you should go right to that person, preferably with "fairwitnesses" around, and get straight with that person. Of course you can get kind of carried away, but without TV, the evening conversations can get pretty interesting.

I saw it as dharma combat. The Zen tradition says that any wandering monk can go into a monastery and challenge the master to dharma combat — outwitting the other person verbally, and thus showing

superior understanding — and the monk can take over the monastery. Steve was pretty impossible to top, but we tried it on each other all the time. I really saw myself as a young monk who wore a jean jacket instead of a robe, going out into the world each day seeking enlightenment for myself and the planet. I believed also that the battles that Arjuna waged in the Bhagavad Gita take place each day within each of us. So I didn't care much about money, and I enjoyed the intensity. In fact that was the real key: *it wasn't enough to handle the intensity, you had to thrive on it.* Living with a people who believed that in great measure, and liked to get high, and were willing to sort it out and then recognize and get high on the mutual understanding when it comes about, can get to feeling pretty tribal. I still feel that way toward many people from those days. And in a loose way that tribe still exists, it just didn't maintain the structure of living together. But you know, I'd be a liar if I said I didn't miss that intense interaction sometimes.

I would also like to say that I never held any position of power on the Farm. I was never the boss of anything, never went on a tour, or had a job that wasn't a real knuckle-buster. And I put up with as much personal shit as anyone who ever lived there. I say this so that when I say something positive about the experience, it comes from someone who might have at least some credibility in making such statements.

Looking back on all of this, I think about the trade-offs involved in joining something or following someone. The teacher has all these heavy trips and then those experiences get sort of codified. The followers can just go through the motions, or even may believe and practice everything and even mature tremendously, but they will never have enough of their own experiences. That's why I am into communities, but not leaders or teachers. One reason I was involved with transportation on the Farm was so that I could get away and have some adventures of my own. I doubt I would have lasted very long otherwise. As soon as the pioneer hacks his way through the bushes and a path is laid out, it isn't the same anymore. We each have to cut our own path.

In '74 Stephen and three others were sent to the Tennessee State Pen for a year over a grass bust that had occurred a couple of years before. Quite frankly, to me this was a big relief. Not that I wished jail on the man, far from it, but the reins of power shifted to Ina May and the rest of his family and I knew that they wouldn't have nearly the grip that Stephen had.

From the very beginning, many people on the Farm had the notion that in the serious quest for group enlightenment, there was no room for satire. Not that people didn't want to have fun, but all that ego-peeling that went on made one cautious to crack very many jokes. And our purpose was so high and serious. But down in the motor pool, where I worked, if you didn't have a sense of humor about the whole thing you were really in trouble. I mean, how many frozen engine blocks and empty gas tanks can you put up with before it all becomes just too funny? Another controversy was sports. A lot of us were closet sports fans. The only physical activity was hard work or yoga. Some of us wanted to play a little touch football. This was an unspeakable notion — to play or watch a "violent" game. We got this old black-and-white TV working and set it up in the motor pool office so we could watch baseball, football, and car races. I don't think I've ever enjoyed watching a World Series more than seeing the Reds play the Red Sox on that fuzzy old tube. So these two notions, satirical humor and enjoying competitive sports, emerged together and began a major change in what became the Farm's "rebel element."

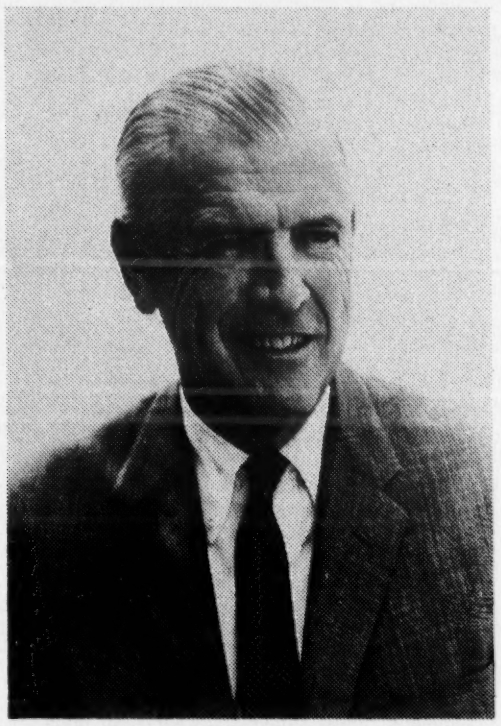
We had some great characters at the pool. And because we worked on the cars we had to take a lot of test drives. We would go into town and buy soda and cookies (Farm contraband), bring them back and work into the night. The father of one of the guys sent down a bunch of nuts and bolts and other sundry hardware from his company's surplus. While digging through these cans I found a bunch of tie clips that were painted gold with bolts stuck to them. I had the idea of creating "The Secret Order of the Golden Bolts." I wrote a speech for our fearless leader, Mr. Kaputi, and found him this funny suit of clothes and sun glasses. We had this ceremony giving a bolt to selected members. The criterion for getting in was that you had to have made some sort of huge blunder. Mine was tipping over the boom truck on its side. From then on we had solid laughs. We started playing football on the big lawn in front of the pool. We had great games every day. Some people were very dismayed by this behavior but others were right with it. The construction crew was undergoing a similar loosening up. We formed our football team, The Golden Bolts, and challenged the other guys on the Farm to a game. So one Saturday we had the big Bolts vs All-Stars game down in the meadow. We all wore yellow shirts and had plays worked out. We killed them. I think the score was 49-7.

Those were fine moments, the best to be had.

So, that's why I stayed. Because the good times were so incredibly good. When someone would holler "Joint Break!" across the shop and we would retire to the woods for our communion, I felt that we were living on liberated soil. I could look around at the woods and my buddies and say, "this is ours." What could be finer than that? ■

John Ott, Light Pioneer

BY RAMON SENDER BARAYON



PHOTOBIOLOGY, THE STUDY OF THE EFFECTS OF LIGHT ON living things, is relatively new as a formal field of scientific inquiry. Only over the past ten years has it become acceptable to question the quality of artificial light we live by and to look more closely at how the human organism responds to sunlight. Recent articles in the popular press attest to exciting discoveries, for example the January 14, 1988 *New Yorker,* which reported a conference titled "The Medical and Biological Effects of Light." Curiously, the article never once mentioned John Ash Ott, who deserves much of the credit for awakening interest in this subject.

During his career as a banker in Chicago, John Ott developed his hobby of time-lapse photography into a successful sideline. We have all seen his blossoming flowers in such Walt Disney films as *Nature's Half Acre.* It was while filming plants under various lighting conditions that Ott noticed how their reactions varied. A reprint of an article from *Smithsonian Magazine* in the September 22, 1987 *San Francisco Chronicle's* "This World" section described how Ott went on to study the responses of both flora and fauna to specific wavelengths. Filming through a microscope, he found that the pigment granules in both animal cells and chloroplasts exhibited behavior patterns to different parts of the electromagnetic spectrum.

Quoting from the article, by Jack Fincher:

"Ott went looking for examples of humans whose health and well-being appeared directly affected by light, and he believed he found them. In one, a laboratory where contact lenses were made, the employees were remarkably free of flu. The lab had plastic windows which admitted ultraviolet light. This is screened out by ordinary glass; that is why you cannot get a suntan inside.

"Another was a seafood restaurant in a hotel. The restaurant had black light (ultraviolet) decor. The health record of the restaurant employees was so outstanding that management could not believe it, especially when they compared the record with those of employees in other departments of the hotel.

"Ott concluded that by deliberately screening out supposedly harmful traces of atmospheric ultraviolet with tinted windows, sunglasses, suntan lotions and the like, we may be making ourselves more vulnerable to "mal-illumination" than we ever were to malnutrition caused by lack of trace minerals in our diets."

Ott's book *Health and Light,* first published in 1973 and now available in an updated Pocket Book edition, describes many of his early experiences and discoveries. One personal anecdote: Ott himself was suffering from severe arthritis of the hip which doctors said would ultimately require a plastic replacement. Although in the habit of wearing sunglasses because his eyes were sensitive to glare, on this particular day he had broken his best pair and went out without them. He was doing some chores with the aid of his cane when suddenly he didn't seem to need it. His hip had not felt so well in years, and he began walking up and down the driveway without his cane to test it.

Sensing that his improvement was related to the effect of unfiltered sunlight on his eyes, he made it a point to expose himself as little as possible to filtered sun. On a subsequent trip to Florida he gradually strengthened his eyes to the point where their sensitivity to glare was reduced. The results were so beneficial that within a week he was playing several rounds of golf and walking on the beach without a cane.

Quoting from Ott:

> "Theories may be interesting to think about . . . but this was affecting my own arthritis, a much more personal matter. Maybe I was one of the lucky people who get better for no reason at all, but I felt strongly that there was a reason. I had taken off my glasses and let the full unfiltered natural sunlight into my eyes and had also made a point of being outdoors six hours or more a day whether it was sunny or cloudy. To me the results were convincing enough: that light received through the eyes must stimulate the pituitary or some other gland such as the pineal, about which not much was known."

At the time he wrote these words, the pineal gland was still described in textbooks as a vestigial remnant of our reptile ancestry. For example, in lizards and frogs, the "parietal eye," as the pineal was named, functioned as a register of solar radiation. Located just under the skin, it still contained a miniature cornea, lens and retina. Going up the evolutionary ladder, the pineal in birds was no longer a sensory organ but a gland.

In the mid-sixties, Dr. Richard J. Wurtman of M.I.T.'s Laboratory of Neuroendocrinology discovered that the growth of the reproductive glands in some mammals was regulated by a pineal hormone named melatonin. Furthermore, the release of melatonin was controlled by neural linkages between the eyes and the gland itself. In a July 1975 *Scientific American* article, Dr. Wurtman delineated some segments of the specific pathway by which light stimulated the ovary of a rat. I quote:

> "Receptors in the retina gave rise to a chain of nerve impulses that traveled via a chain of synapses through the brain, the brain stem and the spinal cord, ultimately decreasing the activity of neurons running to the superior cervical ganglion [in the neck] and of the sympathetic nerves that reenter the cranium and travel to the pineal

organ. There the decrease in activity reduces both the synthesis and secretion of melatonin. With less melatonin in the blood or cerebrospinal fluid, less reaches the brain centers (probably the hypothalamus) on which melatonin acts to suppress secretion of luteinizing hormone from the anterior pituitary. Thus more hormone is released, facilitating ovarian growth and presumably ovulation."

If accredited investigators found it hard to change the mindset of the scientific community, it is easy to see why John Ott's discoveries were laughed off. His lack of scientific credentials made his credibility suspect to the medical establishment even though he conducted his experiments with scrupulous care. Working with pigment epithelial cells found in the retina of the eye and which were then thought to have no visibility function, Ott was able to demonstrate that the cells responded to given wavelengths and intensities of light in the same manner as chloroplasts in plants. He suggested that these similar responses might be involved in the photoreceptor mechanism which stimulated the retinal-hypothalamic-endocrine system in animals and in turn influenced the hormonal balance of the body.

Retiring to Florida, he founded the Environmental Health and Light Research Institute, where he struggled for years for the funding necessary to continue his work. He investigated the effect of light on the growth of tumors, the interconnection between school lighting and hyperactivity in children. He showed how cells exposed to red light suffered a weakening and consequent rupturing of their walls, the effect especially noticeable in the heart of a chicken embryo, which led him to speculate as to a possible connection between the high red content in ordinary incandescent light bulbs and coronary disorders.

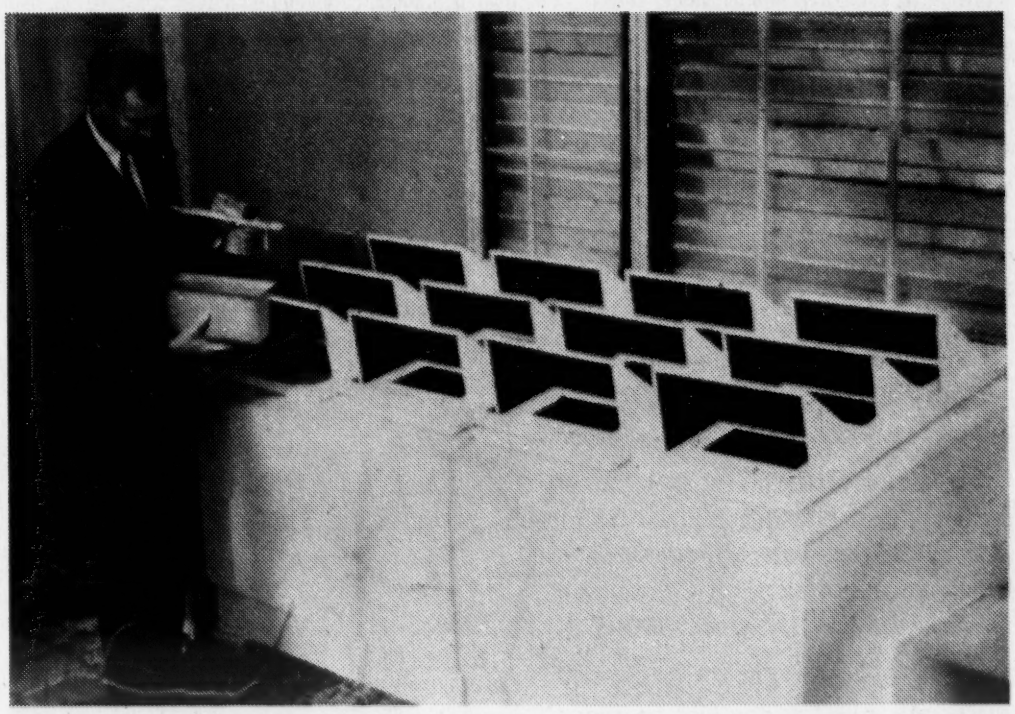
In another article published in the text "Frontiers of Pineal Physiology" by M.I.T. Press in 1945, Dr. Wurtman delineated the eye-to-pineal pathway further:

"Light stimuli reach the pineal by a circuitous route ultimately involving the sympathetic nervous system. Photoreceptors in the eye respond to environmental lighting by generating nerve impulses that are transmitted along the optic nerve. Most of these impulses travel to brain centers associated with vision. A small fraction of the impulses diverges from the main visual pathway and travels along a nerve bundle (the inferior accessory optic tract) which leads to the central hypothalamic neurons involved in the regulation of the sympathetic system. From this point the pathway descends via the spinal cord to pre-ganglionic neurons supplying the superior cervical ganglia; the post-ganglionic neurons then ascend to the pineal where they act by liberating the neurotransmitter norepinephrine."

Today it is generally accepted that the pineal acts as a regulator of regulators within the body's endocrine system. Monitoring the quality of light in our environment, it adjusts the hormonal balance accordingly, affecting such diverse functions as growth and development, body temperature, electrolyte balance, diurnal rhythms, blood sedimentation and many types of blood cell counts. According to Dr. Fritz Hollwich in his book *The Influence of Ocular Light Perception On Metabolism in Man And In Animal*, published in 1979 by Springer-Verlag, the quality of light we live with also affects kidney function, water and electrolyte balance, protein and liver metabolism, blood sugar, insulin production and the functioning of the thyroid. What has been left out? I don't think it would be an exaggeration to say that almost every body parameter is influenced in some manner by the quality of light in our environment.

Everyone who enjoys sitting in the sun or sunbathing knows there must be measurable physiological responses behind this almost universal pastime. In retrospect, it seems unbelievable that it took researchers so long to accept the fact that we respond in many different ways to electromagnetic stimuli. However, ultraviolet light has received a great deal of bad press. The average person's view has been based on the seasonal warnings not to overdo sunbathing sessions at the beach and to protect their eyes with sunglasses. Of course the short ultraviolet rays, most of which are stopped by the ozone layer of the atmosphere, are destructive in quantity to living tissue. But the long ultraviolet used in black lights is not hazardous in the trace amounts that occur naturally outdoors. Like so many things, it's a question of the proper dosage. The balance presented to us in sunlight, whether in full strength or in semi-shade, seems to be what we need for optimum health. Not too surprising considering the millions of years we lived as naked hunter-gatherers out under the sun.

The *New Yorker* article also mentioned reports of encouraging results in the treatment of depression and jet lag by the use of bright lights. In the case of Dr. Alfred J. Lewy in Oregon, he recommended the use of fluorescents of the Vita-Lite type produced by Duro-Test. They should be used at a strength



Some of the mice at Environmental Health and Light Research Institute were kept outdoors under different types of glass and plastic. Openings have only screening to keep insects out. Air from the indoor animal room is exhausted through all the outdoor compartments and out through the screened openings, so the outdoor animals are receiving no more fresh air than animals kept indoors.

four times greater than ordinary room lighting. The Vita-Lite was developed by John Ott 25 years ago and he claims it is inferior to his new full-spectrum fluorescent fixtures that are radiation-shielded and provide a separate socket for an ultraviolet black light. In his most recent book, *Light, Radiation And You* (Devin-Adair, 1982, rev. 1985), he discusses differences between available fluorescents in detail as well as some of his most recent findings.

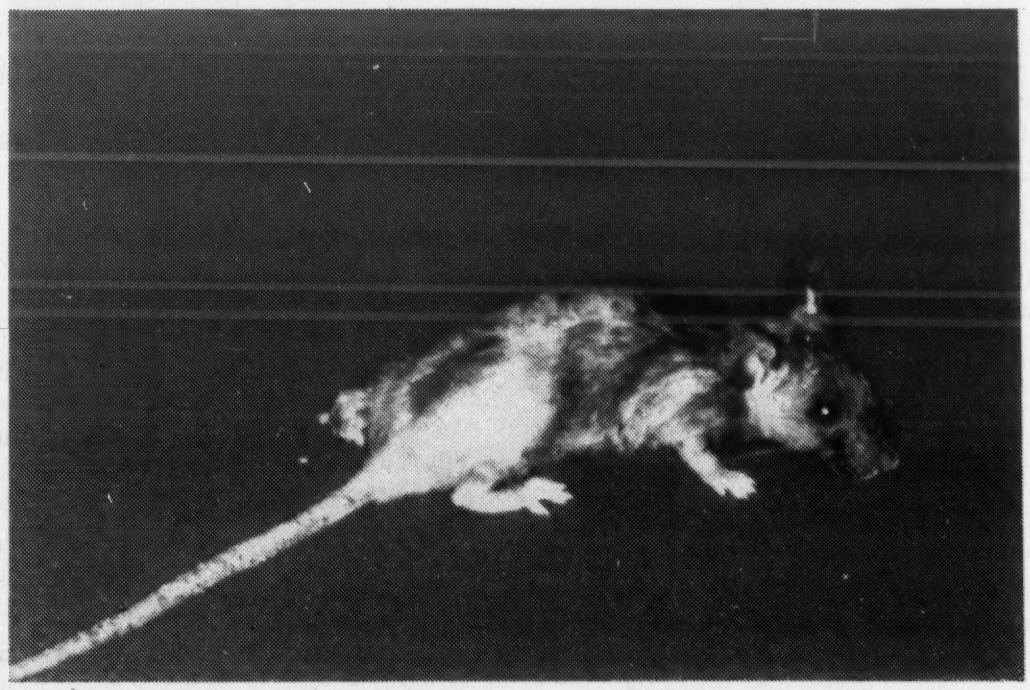
Gradually the recognition and honor John Ott richly deserves has begun to come to him; an honorary Doctor of Science degree from Loyola University and the Grand Honors Award of the National Eye Research Foundation, among others.

In his July 1985 newsletter, he announced a startling new discovery:

> "Possibly the most important development is the finding that when a drop of human blood is placed on an ultraviolet transmitting microscope slide and then placed directly in front of a video display terminal for five minutes, it will cause long-chain clumping of the red blood cells known as 'Rouleau.' The clumping effect has been recognized by doctors for quite some time but has been attributed to poor diet (too much fat) and lack of exercise. Medication to thin the blood has been used.
>
> "However, our finding is that if the slide with the blood sample is then placed directly in front of the low-level ultraviolet source of an Ott-Lite™ radiation shielded fixture for another five minutes, the Rouleau clumping will be broken up. This clumping of the red blood cells restricts the flow of blood through the capillaries and is thought by many doctors to be a contributing cause to many degenerative types of conditions, including Alzheimer's Disease.
>
> "This finding with pictures is included in an article in the July 1985 issue of the *International Journal For Biosocial Research*, P. O. Box 1174, Tacoma, Washington 98401."

I recently telephoned Dr. Ott at his home to ask if he had anything to add to my comments.

"Well, the most alarming information is that we have repeated the clumping experiments several times and confirmed our original findings. There's no question of a doubt, and it's much worse with a video display terminal than with an average television set of a comparable size. The equipment in the terminals seems to give off greater magnetic fields, and we think this problem is due to the magnetic fields magnetizing the iron in the hemoglobin, causing them to have a polarity that makes them line up just like a bunch of little magnets.



Six months under purple plant-growth fluorescent light results in an unhealthy-looking animal. Such animals (mice, rats, hamsters, and rabbits) consistently live only about half as long as those living under natural unfiltered daylight, or close to it.

"However, we find that getting the person outdoors or seating them directly in front of our full-spectrum lighting with ultraviolet reverses the condition. The ultraviolet seems to be an important factor in breaking up this clumping. Being able to show so quickly the effect of video display terminals on the red blood cells and the reversing of this condition is going to be a very helpful demonstration. The initial response from video display terminal manufacturers has been very discouraging. Of course they see dollars going out the window. But in the long run, it's going to be a different story. I was just reading an article on class action suits, particularly the asbestos problem. I think there is a growing realization that the electronics industry has a far greater liability from all this radiation pollution, especially with the PCBs used in transformers and fluorescent light ballasts. The *New York Times* had an article about a major problem that developed at the Smithsonian Institution from the leakage of this material out of the ballasts in fluorescent light fixtures. This seems to me to be a major liability. It's just unfortunate that everybody waits until legal action is taken before doing anything about it.

"The good news is that we have had excellent reports from several places where they have installed our full-spectrum radiation-shielded fluorescent fixtures in computer rooms. The people working there have said they feel so much better, and no longer have the headaches and eyestrain and other problems. Of course when you do something for somebody, there's a psychological effect and they feel better. We have to be certain that there is more than just a psychological effect, and plan to do a series of tests using this blood-clumping result."

"I recently placed a black light over my video display terminal and leave it on when I work at my computer," I said. "Is there such a thing as getting too much black light?"

"Of course there's always the problem of getting too much of anything, including oxygen. The lights that we are making, of course, have the proper-size tube for the number and size of visible light tubes in each fixture. What size tube do you have?"

"About eighteen inches."

"Well one of those I am sure would be all right. Of course our fluorescent tubes are protected with lead foil on

the ends where the cathodes emit x-ray radiation, and the fixtures in addition to the ultraviolet transmitting plastic diffusers have a wire grid to ground their radio frequency. Also, in my book I recommend using the daylight incandescent bulb in the place of the regular one. The daylight has the blue glass which cuts down on the excessive amount of red which comes from the ordinary incandescent light bulb.

"You can get the Vita-Lite which I developed twenty-five years ago with the Duro-Test company, but that was just adding ultraviolet phosphor into their fluorescent tubes of the full visible-spectrum type developed originally for color-matching purposes. They added the ultraviolet directly into the tube and then found that the phosphor had only an effective burning life of about one-third of the visible ones. It's gone long before the tube finally burns out, and there's no easy way to tell when it occurs. That's why with the new Ott-Lite we have added the small black-light tube separately."

"What about these Gro-Lites that people use for indoor plants?"

"I've got one here and I'm trying to get a spectral analysis of it to see how much UV it has. But it's my understanding that the Gro-Lite has that bluish glass similar to the daylight incandescent. I'm not certain it actually gives off any ultraviolet. That's something I'm working on right now."

I asked him how he felt at having his years of work finally vindicated.

"Of course I am really pleased at the interest being shown now," he replied. "The scientific community is beginning to recognize that light is an important variable that should be considered and controlled, especially in research laboratories. As I have said in my articles, I have been trying to bring lighting under scientific control rather than leaving it up to the janitor and building maintenance."

As of the summer of 1988, there are now four special issues of the *International Journal of Biosocial Research* devoted to John Ott's work. The latest covers more recent findings, including interesting case histories. Experiments with bean plants placed in front of an IBM PC Jr., set from three to six feet away from the screens, produced severely mottled leaves. When removed from the area, the plants began producing normal leaves. Ott also discusses a popular variety of sunglasses which only passes the orange-red-pink part of the spectrum, the exact wavelengths he has proved to cause laboratory animals to lose their tails, show excessive calcium deposits in heart tissue, grow large tumors and exhibit extreme behavioral problems. Recent research on Langerhans cells found in human skin makes Ott speculate that the cells are actually biological solar cells, passing solar energy into the body.

Currently the line of Ott lights is being expanded to include a one-by-two-foot portable model. They are being marketed as the Ott Safety Computer Light, and preliminary experiments show that using them in conjunction with CRT computer screens will alleviate headaches and eyestrain. ■

Lights: Ott Light Systems, Inc., 306 E. Cota Street, Santa Barbara, CA 93101. Information sent on request.

Books and journal reprints: The Granary, 1451 Main Street, Sarasota, FL 34236.

Shaping Space

Remember solid geometry? The younger of you may not; computer programming has largely displaced that discipline as a teacher of logic. Nonetheless, the field seethes today as biologists and chemists seek geometric keys to understanding complex physical structure, and mathematicians seek improved methods of modeling.

This book is a look at some recent action, the 1984 Shaping Space conference at Smith College. Like many conference-based books, this one is a bit of a potpourri. Instructions for easily gluing paper models in grade school are right in there with abstruse theoretical dissertations riddled with techno-jargon. Also typical of conference-based books is the feeling of excitement as sometimes-messy explorations are presented complete with surprises and controversy. Enough introductory geometry has been added to make much of the fun accessible to the motivated newcomer. Unfortunately, accessibility denied by the outrageous price is another matter. Have your library get it for you. —J. Baldwin

Shaping Space
(A Polyhedral Approach)
Marjorie Senechal and
George Flack, Editors
1987; 284 pp.
$49.95
($52.45 postpaid) from:
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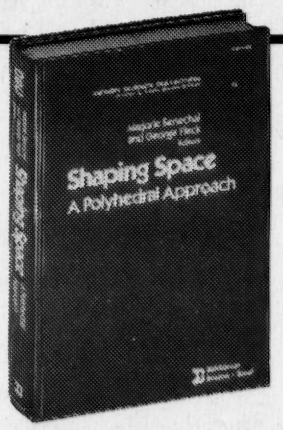

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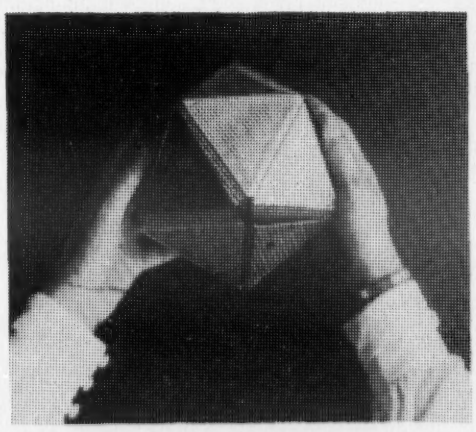
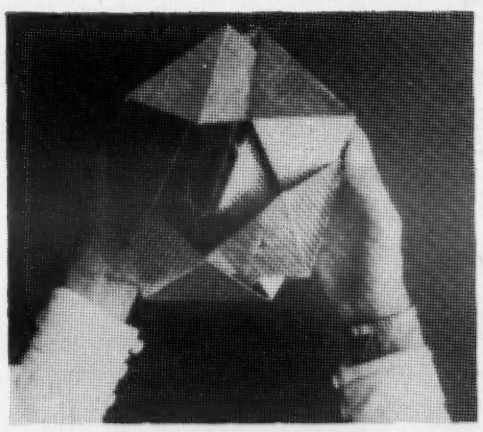
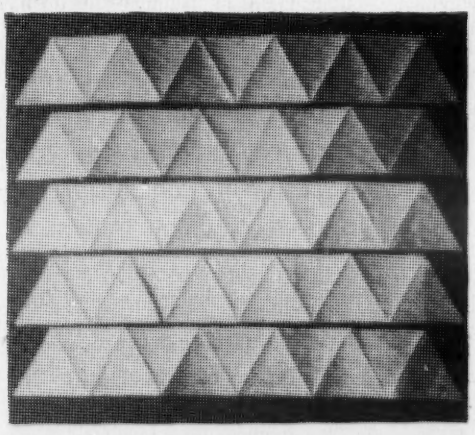
In nature where there is regularity, with structures built of identical parts, there are likely to be regular plans. Geometric considerations are always important in these plans, and sometimes they predominate. However, satisfactory a priori predictions about what in fact happens in nature cannot be made. The only way to find out is to look.

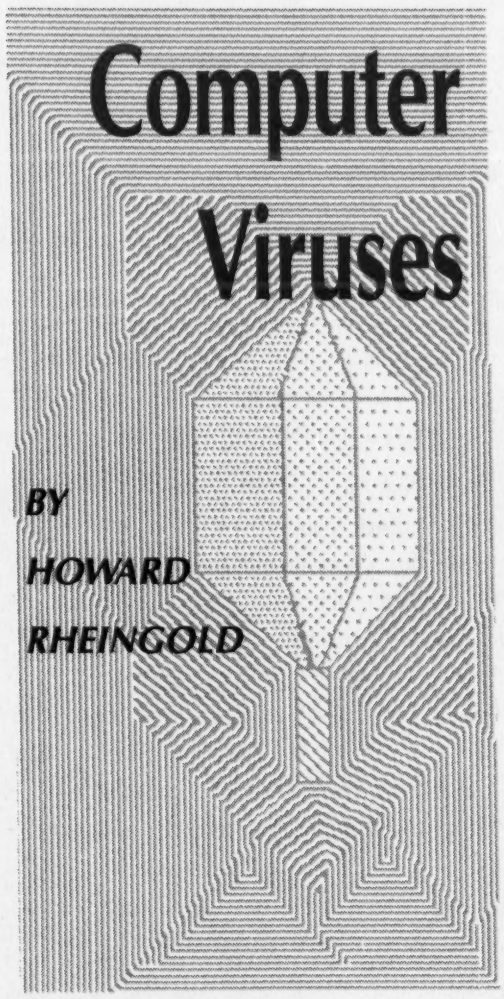
The braided icosahedron coming apart.







Computer Viruses



BY HOWARD RHEINGOLD

In the Darwinian minuet of strategy and counter-strategy, the virus is a paragon of economy. A biological virus is unable to reproduce itself, but it can invade the cell of another organism, commandeer the host cell's reproductive machinery, and force the host to reproduce multitudes of copies of the invading virus. Inside its protein coat, a virus is nothing more than a simple, subversive message that dupes the host cell's information-processing system into following bogus commands. Why bother with fangs, claws, plumage or brains when you can simply take command of somebody else's vital functions?

A software virus is a program that can spread from computer to computer and use each infected computer to propagate more copies — all without human intervention. Any kind of computer will do. Personal computers. Business computers. Defense Department computers. The virus program "infects" the host system, hiding somewhere in the operating system, or in an application program. And then when another computer communicates with the infected host via telephone lines, or when a diskette from another computer is loaded into the infected computer, the virus wakes up and slips itself into the new system.

Originally based on speculative literary predictions of predatory "worm programs," the actual threat of infectious and potentially destructive self-propagating software has grown directly out of science fiction to attack the nerve center of late twentieth-century technological civilization. The meme of software viruses leaped from the minds of its creators, was reproduced on the pages of science fiction novels in the 1970s, which were read by computer scientists of the day, who then created them (in actuality) in the early 1980s. Now they are out of the scientists' control and in the hands of hobbyists — and evolution. Whether a particular computer virus is harmless or fatal to the computers it infects depends on the motivations of its human creator. It takes a human programmer to create one of these virulent programs and let it loose on the population by embedding it in a piece of software that is likely to be used, passed around, copied, and transported by disk or communicated over the telephone network. After the creator releases it, a computer virus can spread very much like a human epidemic of a sexually transmitted disease.

The threat of software viruses was already a matter of concern among technological sophisticates in the Pentagon, the intelligence community, the data-processing industry, and millions of personal computer enthusiasts when Vin McLellan broke the story to the rest of the world on the front page of the business section of the Sunday, January 31, 1988 *New York Times*. In a story headlined "Computer Systems Under Siege," McLellan's sources verified the apocalyptic rumor that had been circulating in the networks for months: the side effects of the Information Age have come home to roost in an insidious form.

Viruses are created by human programmers, but possess autonomy once they are inserted into the memory of another computer. In the early 1980s, the exploits of computer "crackers" came to light. These people, often teenagers, used their personal computers and telephone lines to break into computer systems. One of the weapons the crackers used was "The Trojan Horse" — a program that looks like an amusing game or a useful utility but is actually a lure, because the person who runs it automatically sets in motion secret commands to the computer, commands that were not authorized by the computer's rightful owner.

But these early crackers, the unauthorized entrants in the world's increasingly interconnected communications and computer networks, could be tracked and neutralized if the system operator was serious enough, and their handiwork in most cases could be detected and defused. Very few of them were destructive. The current threat comes from rogue programmers who can build reproductive capabilities into the software time-bomb they leave behind.

When certain viruses detonate, they erase all the data on all the infected computers. Other viruses do not destroy their hosts or even make a fuss with data in a spectacular way. The really sneaky ones are the undetectable data-nibblers that issue one or two little commands to randomly nibble away at small chunks of data — like your private credit data or every item that is linked to my social security number or the targeting instructions of a ballistic missile.

Serious damage already has been done. Large and small things are going to go wrong with infected computer systems for years to come. And although today's software viruses are serious enough, a few influential experts suspect their progeny might be far more serious. It is possible, for example, for today's viruses to evolve and survive long enough to menace your grandchildren — software retroviruses.

One way or the other, things will never be quite the same in the computer world. Inevitably, the news will reach the general population — that we might not ever again be able to trust the reliability of the computers that seem to have become essential to every aspect of our lives, because they may have become infected with a software virus or retrovirus that will lie in wait, undetectable, until it detonates. ■

A SOFTWARE BESTIARY

Computer Parasites & Remedies

A Catalogue of First Sightings of Real & Imaginary Beings ~

by

Corinne Cullen Hawkins
illustrated by H.S. Robins

VIRUSES

Viruses, in their simplest form, just replicate themselves. A slightly more advanced virus not only duplicates a program but renames each one slightly differently. More sophisticated viruses erase files, scramble memory, turn off the power, or do any/all of these things with a time delay, called a time bomb. Some viruses "burn a hole" somewhere so that a certain command will do something else, i.e., given an addition command the program subtracts instead.

Creeper — Possibly the first known virus, first sighted in 1970. Built by Bob Thomas of BBN, it was a demonstration program that crawled through ARPAnet, a nationwide Pentagon-funded network linking university, military and corporate computers, springing up on computer terminals with the message, "I'm the creeper, catch me if you can!"

A version of Creeper done by Ray Tomlinson not only moved through the net, but also replicated itself at times.

Reaper — In response to Creeper, this virus also jumped through the network, but it proceeded to detect and "kill" creepers. (*The Cincinnati Post,* Feb. 1, 1988)

Rabbit — One of the first known viruses, first sighted in 1974 by Bill Kennedy. When Rabbit was introduced into a system, it copied itself and continued to toss the copies back into the input jobstream (the place where programs start). This slowed the communication between the input jobstream and its console (teletype where system operator sees what's going on), which made Rabbit harder to kill the longer it ran. (comp.risks *[an electronic journal on the Usenet network],* Mar. 29, 1988).

Pervading Animal — An early proto-virus attached to a Univac 1108 game program called Animal. While the user was playing the game, Pervading Animal copied itself into every write-enabled program file available. (Mike Van Pelt, comp.risks Mar. 29, 1988.)

Smart Virus — In the book *The Adolescence of P-1* (Thomas J. Ryan, Collier Books, 1977), there is an example of an intelligent, information-hunting virus.

ARPAnet Data Virus — On October 27, 1980, multiple "status" messages began appearing on the ARPAnet. Status messages are normally broadcast from each node of the network to relay their readiness to handle new data. Each node then propagates copies of incoming status messages to other nodes in an ongoing determination of the optimal path for the electronic traffic. Status messages are supposed to be trashed immediately afterward, but in this case the message from a particular node somewhere near Los Angeles became mutated. Its contaminated form caused a "garbage collector" malfunction in the receiving nodes. No messages could be thrown out, thus saturating the nodes. Yet the nodes continued to propagate waves of this debilitating message, infecting others which couldn't dump the infected message, until it spread throughout the whole network like cancer and ground it to a halt. It was 72 hours before technicians could revive it. (*Software Engineering Notes,* Jan. 1981.)

2600 VAX Virus — This one replicates itself, sends jobs continuously to the batch queue (where programs line up, waiting to be run). All that happens is the

Queue might overflow. (*2600,* Aug. 1986, vol. 3, no. 8.)

Elk Cloner Virus — First sighted in 1981 or 1982, this one runs on the Apple II family. It inserts itself into the DOS operating system. Elk Cloner hooks into the RUN, LOAD, BLOAD, and CATALOG commands to make them check the accessed program disk and infect it. It prints a poem:

The Program with a personality
It will get on all your disks
It will infiltrate your chips
Yes, it's cloner!
It will stick to you like glue
It will modify Ram too
Send in the cloner!

(comp.risks, Apr. 26, 1988 by Phil Goetz)

Finger Virus — A speculative virus that would go out replicating until it found a specific person. Then it would send that person's e-mail address back to its creator. (Fred Hapgood, First Artificial Life Conference, Sept. 1987).

Lehigh Virus — First sighted Nov. 25, 1987 by Jeffrey Carpenter, posted on Usenet. It attached itself to a few lines of the operating system used on the IBM PCs that Lehigh University provides for student use. It is a corruption of a legitimate program, Command.Com, the basic boot-up file of MS-DOS and PC-DOS. The virus destroys data on floppies and hard disks by writing zeros to the first thirty-two sectors of a disk (which erases the directory kept in the first couple of tracks), making the data unrecoverable.

It spreads when a clean PC is booted from an infected disk and the user accesses a second, uninfected program disk with the resident commands: TYPE, COPY, DIR, CHDIR, ERASE, MKDIR, RMDIR, VERIFY. The virus waits until it has been copied four times before it wipes out the data on the disk on which it resides.

© **Brain Virus** — First sighted Fall, 1987 at the University of Delaware. It changes the volume label (the given name) of a floppy or hard disk to © Brain. The boot record contains a message: "Welcome to the dungeon . . . Beware of this VIRUS. Contact us for vaccination." The message includes the address and phone number of Brain Computer Services, a computer company in Lahore, Pakistan, and the names of two brothers, Basit and Amjad.

The virus marks some disk sectors as bad. It modifies several command files, maybe all of them eventually, without changing file sizes or dates. Even if the boot sector is rewritten, the virus remains active through the command files it modified. No known cure. (comp.risks, Apr. 5, 1988.)

This is the first virus to infect an American newspaper's computer system (*The Providence Journal-Bulletin*). When the phone number in Pakistan was called, the person who answered expressed surprise that the virus had travelled so far — and refused to give his last name. (*New York Times,* May 25, 1988.)

Amiga Virus — This one is a simple modification of the Amiga boot block. On an Amiga floppy the boot block consists of the first two sectors on the disk. Normally it contains a small bit of code that loads and initializes the DOS when it is "booted" or turned on. Some commercial software packages and games store special information in the boot block. Since the virus overwrites this, the information is lost forever. After a certain number of disks have been infected the virus will print a message:

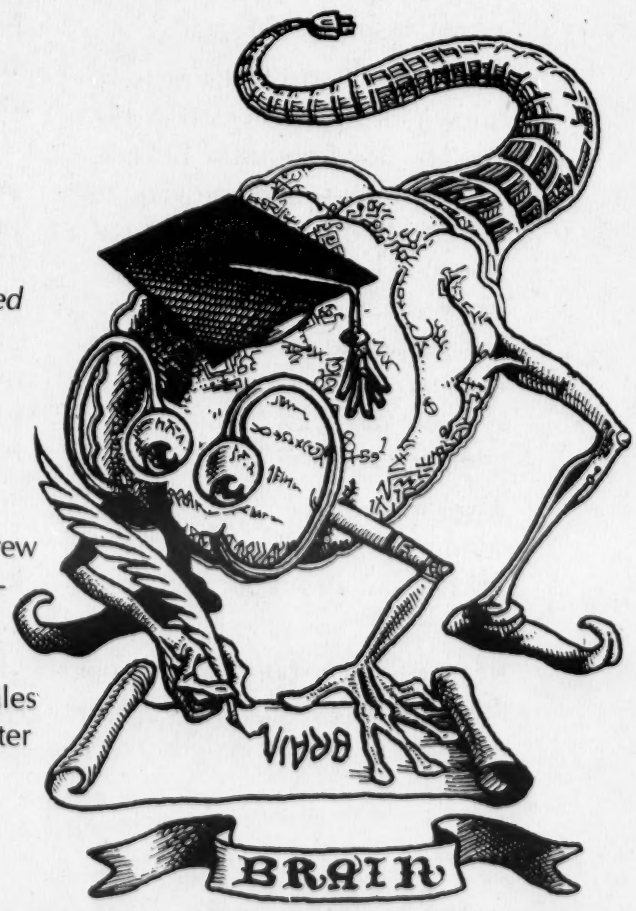
"Something wonderful
has happened.
Your Amiga is alive!!!
and even better
Some of your disks are infected
by a VIRUS
Another masterpiece of the
Mega-Mighty SCA"

(comp.risks, Dec. 7, 1987.)

Israeli Virus — First sighted by Yuval Rakavy, a student at Hebrew University; first mentioned publically in *Maariv,* one of Israel's daily newspapers, Jan. 8, 1988. Designed to begin destroying files on May 13, and to slow computer response on the 13th of any month, it would also put garbage on the screen from time to time. What called attention to the virus was an error in the virus code itself, which caused it to mistake previously infected programs as uninfected. In error, it would add another copy of itself to the program. Some programs were infected as many as 400 times and the growth in size of the program was noticeable. This one was discovered before D-day, but it had infected home, university, and military computers before it was detected.

MacInVirus — First known encounter by David Spector. This virus was written by a West German and posted to CompuServe in a HyperCard stack. The virus is disguised as a resource that inserts itself in a system trap handler (the place where the computer catches errors so they won't cause system crashes). The virus destroys hard disks and the applications that run on them. (comp.risks, Jan. 10, 1988.)

"Good" Virus — Written by a West German programmer, this virus won't let "unknown" programs run on one's machine. If the programs to be run aren't already infected with THIS virus, they won't be allowed to run at all. (comp.risks, Jan. 10, 1988.)



Virus Compressor — First imagined by Fred Cohen, this virus would compress the coding of data, permitting it to be stored in a smaller space. It would ask permission of the user each time it acted. (*New York Times,* Jan. 31, 1988.)

Target Virus — This one would target a specific program or individual, for example, by systematically altering spreadsheet data or performing other subtle changes. (*The Cincinnati Post,* Feb. 1, 1988.)

The Anti-Virus Software Virus — First imagined by Chuck Weinstock, posted to Usenet Feb. 9, 1988. The virus is, of course, imbedded in the software you use to detect viruses, and therefore goes undetected.

Meta-Virus — First imagined by Jeffrey Mogul, Feb. 9, 1988 on Usenet. This is a paranoia virus, created only with words:

WARNING! A serious virus is on the loose. It was hidden in the program called 1987 TAXFORM that was on this bulletin board last year. . . . By now, it is possible that your system is infected even if you didn't download this program, since you could easily have been infected indirectly. The only safe way to protect yourself against this virus is to print all your files onto paper, erase all the disks on your system, buy fresh software disks from the manufacturer, and type in all your data again. But FIRST! send this message to everyone you know, so that they will also protect themselves.

This virus took Jeff Mogul two minutes to produce and he didn't even have to write any code.

Scores Virus — First sighting mentioned in *MacWeek,* Apr. 12, 1988. In existence since at least February, and possibly since as early as September 1987. It infiltrated several government agencies, Apple sales offices, and the Mac of an unidentified senator, as well as *MacWorld* and *Macintosh Today.*

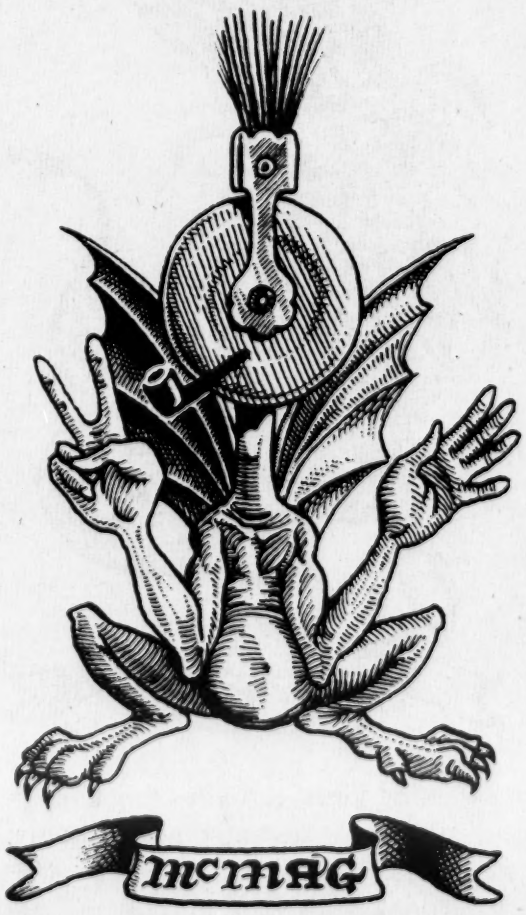
First dissected by John Norstad and Bob Hablutzel, this virus has several time-delay features. It's designed to attack two custom applications called ERIC and VULT, but it will infect anything. Several days after infecting a Mac system, the virus attempts to locate and modify any files with the creator code of ERIC or VULT. The code of the virus is written to make the targeted program dysfunctional. The virus lies dormant for two days after infection. After two, four, and seven days various parts wake up and begin their mischief. Two days after the initial infection the virus begins to spread to other applications. After four days the second part of the virus wakes up. It begins to watch for the VULT and ERIC applications. Whenever VULT or ERIC is run, the system bombs after twenty-five minutes' use. After seven days the third part of the virus kicks in. Whenever VULT is run the virus waits fifteen minutes, then causes any attempt to write a disk file to bomb. If you don't do any writes for another ten minutes the application will bomb anyway.

Deleting the infected resources isn't enough to remove the virus since the virus recognizes the attempt and modifies its resource identification and memory location when probed by resource utilities. ResEdit "thinks" that the virus resources have been deleted, but they have been renamed and will return when the Mac is restarted.

Apparently, the virus doesn't attempt to spread itself over networks.

The Scores virus causes printing problems, system crashes, application crashes on launch, and damaged Excel files.

MacMag Virus — First sighted by Chris Borton Mar. 8, 1988 and posted to comp.risks on Usenet. First mentioned in print in the *Toronto Star* March 16, 1988. The virus was launched in December 1987 by Richard Brandow, publisher of *MacMag* magazine in Montreal, Canada. It was supposed to be a simple message of peace, designed to pop up on Macintosh screens on March 2, the anniversary of the introduction of the Apple Macintosh SE and Macintosh II. The virus infects the System file, but doesn't directly affect applications. After March 2 the virus erased itself. Although this virus was designed to be benign, it had some nasty side effects: it played havoc with users' System folders, resulting in thousands of hours of lost work. ►



The virus spread to Europe and the West Coast, and it is the first virus to infect a commercially available personal computer product. It was inadvertently passed to Aldus by Marc Canter, president of MacroMind Inc. of Chicago, which makes training disks for Aldus. Mr. Canter's personal machine caught the virus from an infected copy of Mr. Potato Head, a computer game. Mr. Canter ran the program only once; it was enough to infect his computer, which was later used to work on a training software disk for Aldus. Aldus admits that a disk-duplicating machine copied the infected disk for three days. Half of the infected disks were distributed to retailers; the other half were warehoused.

Immortal Virus — First imagined by Paul Hoffman, Mar. 13, 1988 in the Macintosh Conference on The WELL. This virus would live in some cache-like memory on a serial port or parallel port (what connects a printer to a computer) so it would survive a warm boot, even after a devirusing.

King Virus — A virus that kills other viruses and replaces them with itself. First imagined by Andrew Beals, Mar. 16, 1988 on The Well. No known sightings.

King II Virus — A virus that not only kills other viruses, but feeds on them, getting stronger each time. Imagined by Michael Zentner, Mar. 16, 1988, Macintosh Conference on The Well.

Bell Labs Virus — A compiler program (which translates a human programmer's instructions into a set of 1s and 0s that a computer can read) had been altered so that it secretly embedded a hidden "trapdoor" each time it created a new version of the operating system. The secret trapdoor altered the system so that, in addition to normal users' passwords, it would recognize a magic password known only to one person. The instructions never showed up in the program listing — it was undetectable through normal means. The virus never escaped Bell Labs.

Atari ST Virus — First dissected Mar. 22, 1988, posted on Usenet Mar. 26, 1988 by Martin Minow. Once installed, this virus will copy itself onto every non-write-protected disk used. It tests an uninfected disk to see if it contains the virus, replicates, then it keeps count of how many times the disk is used after that. When a certain limit is reached, the virus writes random data across the root (central) directory and file allocation tables (the computer's index of where data are stored) for the disk, making it unusable. The virus then removes itself from the damaged disk. The current virus doesn't affect hard disks. This virus may survive a reset (a warm boot — resetting the machine without turning it off).

No-Name Virus — First rumored to exist Mar. 26, 1988 on Usenet, posted by Martin Minow. This virus is almost impossible to detect because for each disk, it scans for any program file and appends itself to the text segment in some way. This makes it very difficult to tell whether or not the virus is actually on the disk.

TROJAN HORSES

These parasites are bits of code slipped into an otherwise innocent program. Viruses replicate; Trojan Horses do not. Some are written from scratch, some are adulterated copies of legitimate programs. Some Trojans erase or scramble data, some just scramble or erase the file allocation table. Some begin destruction within minutes of infection, others perform as legitimate software for weeks or months, then touch off a time bomb. Some Trojans put up a screen message such as: "I'm deleting all your files," then proceed to do so. Some put up a similar screen message, but don't follow through. The more sophisticated Trojan Horses delete themselves with their last line of programming. In other cases the Trojan isn't actually inserted directly into the program. Only a pointer is placed in the program, telling the system which program to run, and the horse is hidden elsewhere.

Notroj — This Trojan Horse pretends to be a program that guards against Trojans. It's actually a time bomb that wipes out the hard disk after it's more than 70 percent full. (*New York Times,* May 19, 1987.)

XmasCard Trojan — First known sighting Dec. 9, 1987. It was written as a prank by a West German student. This Trojan began in a European academic computer network (Bitnet) and jumped through electronic gateways to five continents and to the internal e-mail system of IBM. In the IBM internal e-mail system, a holiday message promised to draw a Christmas tree on the screen if someone would type the word "Christmas" on the computer. When they did, it drew a tree but it also sent a copy of itself to all of the other network mail addresses kept in each user's electronic rolodex. Along with a very primitive tree (made of capital "Xs"), a message was displayed: "A very happy Christmas and my best wishes for the next year. Let this run and enjoy yourself. Browsing this file is no fun at all. Just type 'Christmas.'"

Once opened, the program rarely accepted commands to stop. Operators who turned off their

terminals to try to stop the Christmas message lost electronic mail or unfinished reports not saved in the computer. The Trojan infected so many machines that it brought IBM's global electronic mail network to a halt, disrupting the system for 72 hours. Plant officials were forced to turn off internal links between computer terminals and mainframe systems to purge the message.

A virus was written to follow and destroy the Christmas Card Trojan and then self-destruct in mid-January. The Trojan was generally stamped out by December 14, 1987. The culprit was tracked down and barred from access to his system.

Turkey Trojan — A program being passed around via ARPAnet and some other computer networks, called "Turkey." It's supposed to draw a picture of a turkey but it doesn't. Instead it erases all of the unprotected files in the directory. (comp.risks May 12, 1988.)

Run.me — This is a graphics program which plays the Star-Spangled Banner and displays the American flag while it worms its way into the hard disk and erases the data on it. (*New York Times,* May 19, 1987.)

WORMS

Essentially, worms are simple creatures: memory crunchers which rewrite themselves successively through the computer's memory. The programs on individual computers are the segments, which remain in communication with each other. Almost any program can be modified to incorporate the worm mechanism.

Xerox PARC Worm — In 1980 John Shoch at the Xerox Palo Alto Research Center devised a worm which wriggled through large computer systems looking for machines that were not being used and harnessing them to help solve a large problem. The worm could take over an entire system. (John F. Shoch and Jon A. Hupp, Sept. 1980, Xerox Palo Alto Research Center.)

Existential Worm — A worm whose sole purpose is to stay alive. It runs no substantive application program. The Cookie Monster Worm at MIT was one such. It might display a screen message such as: "I'm a worm, kill me if you can!" (John Shoch, 1980.)

Billboard Worm — A worm used to distribute a full-size graphic image to many different machines. Some have graphics of the worm nibbling up the screen and heading off into memory. (John Shoch, 1980.)

Alarm Clock Worm — A worm that reaches out through the network to an outgoing terminal (one equipped with a modem), and places wake-up calls to a list of users. (John Shoch, 1980.)

Gladiator Worms — Bill Buckley and James Hauser developed Core Wars, where the object is to write a worm program that can replicate itself faster than another worm program can eat it. The one alive at the end wins. Some of the winning programs have a chromosome consisting of only four lines of code. Longer genes can't execute as fast as short ones, so they tend to get weeded out. (*WER* #58.)

Shockwave Rider Worm — Still the most sophisticated worm is the fictional one created by writer John Brunner in his novel *The Shockwave Rider.* Brunner's tapeworm ran loose through a computer network, gobbling up computer memory in order to duplicate itself — there was no stopping it. The worms were used by rebels to undermine a dictatorial government wielding power through a computer network.

> "And — no, it can't be killed. It's definitely self-perpetuating so long as the net exists. Even if one segment of it is inactivated, a counterpart of the missing portion will remain in store at some other station and the worm will automatically subdivide and send a duplicate head to collect the spare groups and restore them to their place."

(John Brunner, *The Shockwave Rider,* Ballantine, 1975.)

Worm Watcher — A special program which automatically takes steps to limit the size of a worm, or shut it down if it grows beyond a certain limit. The worm watcher also maintains a running log recording changes in the state of individual segments. This information can be used to analyze what might have gone wrong with a worm. (John Shoch, 1980.) ►

VIRUS REMEDIES

As viruses have proliferated, so have vaccines and other remedies.

Viralarm System (Lasertrieve Inc., of Metuchen, N.J., 201/906-1901) — Consists of a special program to protect another program, creating a software barrier. The protection is available for individual personal computers and works for most operating systems now available.

Protec ($195 from Sophco. Inc., P. O. Box 7430, Boulder, CO 80306-7430; 800/922-3001) — A system of programs that includes Vaccinate — a virus itself, which infects the host via the Syringe program. It warns the end user (the person using the program as opposed to the one who wrote it) if a virus infection has occurred. It also includes Canary, a quarantine program. When new files are imported from an unknown source, a user places the Canary program on a diskette with the suspect files. If the Canary dies, a virus program is present. Protec works on the IBM-PC family of computers.

Checksum — Commonly attached to the end of a program. Although not designed as a virus catcher, it can be used to see if the size of the program changes.

Ferret — Created by Larry Nedry and Scott Winders. Notifies an infected user of the date that the Scores virus installed itself. It's helpful in determining where/how the virus was picked up. Ferret is available on electronic bulletin boards such as CompuServe and MacNET. (*MacWeek,* April 26, 1988.)

KillScores — Unlocks locked files, disinfects, and leaves files unlocked. (comp.risks May 11, 1988.)

Vaccine — By Don Brown at CE Software, Inc., Mar. 19, 1988. It enables your computer's operating system to detect alterations to the code of your system files and applications. It requires your permission for any such alterations. If your system is already infected when you install Vaccine, there will be no warning from Vaccine that the virus exists. If Vaccine is installed on a sterile system and the Scores virus is introduced later, Vaccine will only warn of the virus attack; it will not prevent infection. Vaccine is available free on electronic bulletin boards such as CompuServe and Genie.

Interferon — Written by Robert Woodhead. A shareware program that detects and claims to recognize "signals" that viruses give off when they are present, Interferon was intended to complement the Vaccine program from CE Software of Des Moines, Iowa. Interferon is available on electronic bulletin boards.

Softlog (Asky Inc., Milpitas, CA. Licensed to corporations in lots of 100 units for $2,400.) — Matches the current size of computer files against their previous size, and thus detects any unauthorized additional material, such as a parasite.

Truss — For UNIX systems, it allows the system administrator to examine any process and observe the activities of any user logging in from a remote site. Truss attaches to a login shell (the part of the computer that handles the commands a user needs to login to the bulletin board). Truss can also freeze a process and allow a debugger more detailed information about the errant process.

Data Physician ($199 from Digital Dispatch, 1580 Rice Creek Road, Minneapolis, MN 55432; 612/571-7400) — The granddaddy of virus remedies, it detects and in some cases eliminates viruses. Makes careful measurements of a computer's programs and data files to detect any alien computer codes. It includes:

Data MD — One portion of Data Physician, which creates a list of computer data files to be protected and watches them while the computer is in operation.

Antigen — Attaches itself to an individual computer program and checks it for viruses each time it's used. To remove a virus, Antigen erases the bytes of computer data that weren't in the program earlier.

Padlock — Prevents anything from being written on a storage disk unless the computer operator pushes a button to give permission.

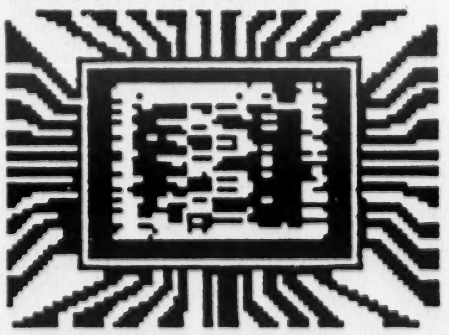
Data Physician works on IBM PC and UNIX systems.

Disk Defender ($199, Elek-tek, 6557 N. Lincoln Ave., Chicago, IL 60645; 800/621-1269) — Director Technologies, Inc. developed this product, which write-protects in hardware all or part of a personal computer hard disk. This protects the operating system and commonly used programs from viruses.

Virus RX — Developed by Apple (but sold through local dealers), this is a detection tool to determine whether a system has been infected by the Scores virus, and if so, which applications have been affected. It lists damaged applications, invisible files, altered system files, and altered applications. Virus Rx reports different levels of concern from simple comments to "dangerous" to "fatal." It first lists damaged applications — those that have not been infected by the virus, but will not work and should probably be removed. This program is available through Apple dealers, AppleLink, and through some users'-group bulletin boards.

Forgery Detector — Designers are now working on software that analyzes a program's style, in a similar fashion to handwriting analysis. It can then detect when "foreign" code is added to a particular program. It may also be able to determine the author of a virus. (*The Cincinnati Post,* Feb. 1, 1988.)

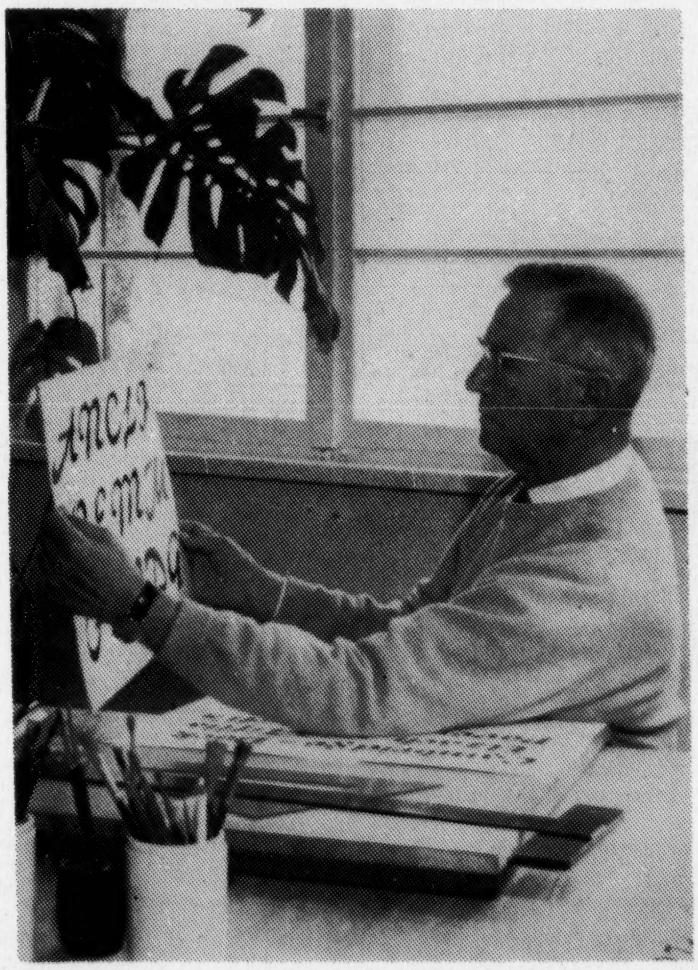
Pirate Detector Virus — This one keeps track of software duplication. It tells you how many copies of a program have been made, and alerts you to illegal or viral program duplication. (*New York Times,* Jan. 31, 1988.) ■



Twentieth Century Type Designers

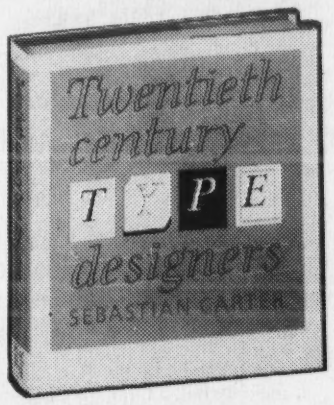
Typography is as invisible to most readers as molecules are in daily life. Yet it's subtly crucial to the underlying structure of anything we read. As a writer, typesetter, magazine editor, design dabbler, and (recently) desktop publishing aficionado, I sought to understand typography for years: why did the same page change so much just from changing between Century, say, and Helvetica? Why did Palatino feel so regal, and Souvenir so clunky? I leafed through dozens of dreary type spec books in vain, never finding the soul of this intensely personal craft form. Finally, Sebastian Carter's tribal history educated me — partly about letterforms, partly about the dedicated madmen who designed them, and mostly about the sense of civilization which letterforms evoke.

For anyone who uses type — designers, desktop publishers, typesetters, maybe even readers — this otherwise readable group biography becomes magnificently practical. —*Art Kleiner*



Georg Trump (1896-1985).

Twentieth Century Type Designers
Sebastian Carter
1987; 168 pp.
$24.95
($26.20 postpaid) from:
Taplinger Publishing Co., Inc.
132 W. 32nd Street
New York, NY 10011
212/741-0801
or Whole Earth Access



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Over the next years Goudy continued to show his curious ability to design good types side by side with bad ones; indeed it is improbable that any distinguished designer has produced more awful types.

•

Eric Gill described himself on his own gravestone as a stone carver, which embraced the two activities for which he was most famous, sculpture and the cutting of inscriptional lettering. He might have added: wood engraver, for he was a versatile and original artist in that medium, and his engravings for the Cranach Press *Canticum Canticorum* and the Golden Cockerel Press *Four Gospels* (both 1931) are magnificent achievements of book illustration. He might also have added: essayist, since he was an indefatigable writer on a great variety of subjects from sex, politics, religion and the nature of workmanship to art, clothes and typography. And he might also have added: type designer, since in Gill Sans and Perpetua he designed two of the most popular faces of the century.

First sketches by Georg Trump for Trump Mediäval italic (1956).

Whole Earth

Poster Maker Plus

For bending type as if it were rubber, this neat program for the Macintosh can't be passed over. You can enlarge the text to any size when you print it on a Laserwriter, which means that it can later be reduced for reproduction with impeccable resolution. And you can print out both type and graphics in sheets to assemble it as a gigantic poster. —*Kevin Kelly*

Poster Maker Plus: Version 2.5. Not copy-protected. **$59.95** ($63.45 postpaid) from Broderbund, P. O. Box 12947, San Rafael, CA 94913; 800/527-6263.

Gocco Printer

Gocco ("child's play") accurately describes the level of expertise required to operate this nifty little gadget. And certainly any child in your household would be happy to prove it, if only the adult inhabitants would quit monopolizing it!

Essentially the Gocco is a photo screen printer. You use flashbulbs to make the screen. The original art needs to contain carbon (most inks and all photocopies are carbon-based). There's a little flashbulb housing that sits on top of the press's upper half. When you press it shut, flashbulb light passes through a light-transparent film, over the artwork, hits the carbon of the artwork, is re-radiated as infrared light, which melts the film, thereby making the print master. Lift off the flashbulb housing, and lift up a clear acetate sheet which sits on top of the print master. Squish ink from a tube onto the master, lower the piece of acetate, put a piece of paper on the bed, press down — there's Print No. 1.

You can get 50 to 250 prints from one inking, depending on how fine-lined your original art is. When prints become unacceptably faint, simply lift the acetate sheet and re-ink. And by all means squish different inks on different areas of the master for multicolored prints.

Lazann Ryle, a piano teacher, showed me a Gocco in action; she was printing a 10-point type logo on envelopes for her students. Each came out clearly with no smudges or featheriness. Quite impressive.

You can print on just about anything that will lie flat on the Gocco's bed: Lazann showed me napkins, wedding invitations, postcards, tea towels, even a mirror. Although the image area is fairly small, you can feed a larger piece of paper or cloth through and print a bit at a time.

Do get ***The Gocco Guide*** *with your printer (the original instructions are translated somewhat idiosyncratically from Japanese). Its step-by-step directions are very clear and it's loaded with tips and hints culled from two experienced users.* *—Sarah Satterlee*

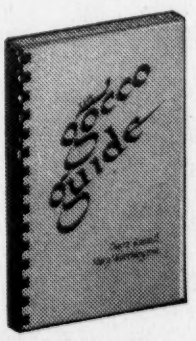
Gocco Printer: B-6 image size 4" x 5¾", **$98** ($103 postpaid); B-5 image size 5" x 9", **$320** ($328 postpaid); each comes with enough supplies to get started.

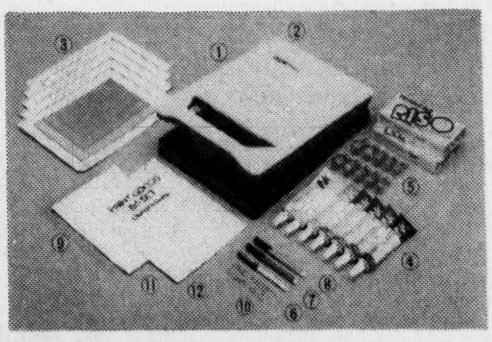
The Gocco Guide

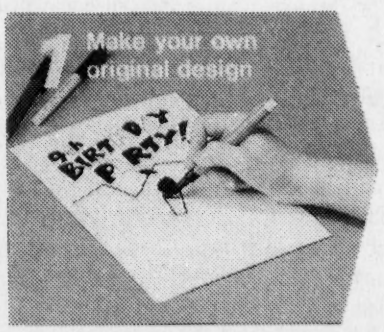
Claire Russell
and Mary Worthington
1983; 129 pp.

$10 ($11 postpaid)

Both from:
Think Ink
1452 NW 185
Seattle, WA 98177







MAJOR FEATURES

●One set only is required from making a PRINT GOCCO MASTER to printing ●Cut illustrations, printed materials and your own graphics can all be used as an original ●Can be used by everyone: just press the handle ●One touch, multicolor printing: you can even mix the 7 supplied colors to produce your own favorite shades ●No worry about ink-soiled hands ●80—100 prints can be made from one ink filling ●30—50 sheets of paper can be set at one time to increase printing speed

SPECIFICATIONS:
●Printing area: 160 × 230mm ●Dimensions: 310(W) × 430(D) × 170(H)mm (including lamp housing) ●Weight: 5kg ●Power supply: Three "C" size batteries (1.5V)

Unibind 11 Desktop Publishing

Where's desktop publishing without desktop binding? At loose ends, that's where. The big desktop-publishing revolution has created all sorts of needs to hold pieces of paper together. What you want is a cheap way to bind the pages from laser printing into a saleable book. What most commercial binding companies want to sell you is outrageously overpriced equipment.

I have sorted through dozens of different binding systems from $5 staplers to $5000 industrial machines. A couple are real jokes. One or two are passable. The winner, which I use to bind my self-published books, is the new Unibind 11 system.

This is a perfect-binding system that consists of 11 x 17 clear vinyl covers with a colored backing strip. Hot glue is pre-applied to the cover spine. You put the pages into the cover and then pop the works into a toaster-style machine for half a minute or so. Then you whop the cover onto a cooling plate and set it aside to cool.

Unibind will lend you the Unibind toaster ($270) for free if you buy enough covers over a one-year period. The cost of a cover per book is in the 60-cent to one-dollar range. *—Don Lancaster*

Unibind 11: information **free** from Unibind, 2213 Birch Street, Vancouver, BC Canada V6H 2S9; 800/663-6807.

Perma-Bound Binding

A library bindery, this company will "Perma-Bound" your paperbacks for as little as $3 apiece ($25 minimum order). After removing the original paper cover, they reinforce the binding and then rebind, sandwiching the paper cover between binder board and clear polyester film. Voila! Cheaper than hardbound, more durable than paperback, and a great way to save that treasured book whose pages are beginning to fall out and whose cover is getting ratty. (If too ratty, the pages can still be rebound but with a solid-color cover imprinted with title and author.) Your favorite might be bound already — call for their catalog of over 6,000 titles.*

—Sarah Satterlee

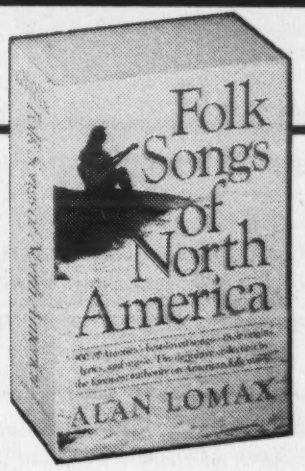
** Cost comparison:* ***Lake Wobegon Days*** *by Garrison Keillor is $17.95 in hardcover, $4.95 in paper, and $8.40 Perma-Bound.*

Perma-Bound Binding (for paperback books): Hertzberg-New Method, Inc., Vandalia Road, Jacksonville, IL 62650. 800/637-6581; 217/243-5451.

Folk Songs of North America

Alan Lomax, America's premier song collector, has given us an anthology of words, music and background for over three hundred folk songs — ballads to spirituals.

This is one of those big, fat, satisfying paperbacks; you just know that you are getting your money's worth. In this case, value abounds within the pages as well. The book offers words and chords for songs ranging from the classic ballad "Barbara Ellen" to the obscure cattle drover's lullaby "My Love Is A Rider." Lomax, a colleague of Pete Seeger, Huddie Ledbetter, Woody Guthrie and The Weavers (among others), gathers some of the finest folk songs of our culture, mixes in simple arrangements especially suited to acoustic guitar, and seasons this stew with a liberal sprinkling of timely anecdotes. Tasty indeed.



Folk Songs of North America
Alan Lomax
1960; 623 pp.
$15.95
($17.95 postpaid) from:
Doubleday & Company
Cash Sales
P. O. Box 5071
Des Plaines, IL 60017-5071
800/223-6834 ext. 479 or Whole Earth Access

With this book, a steelstring guitar and three chords a man could almost make a living on the folk circuit. Come to think of it, some do. —*Jerry Vovcsko*

•

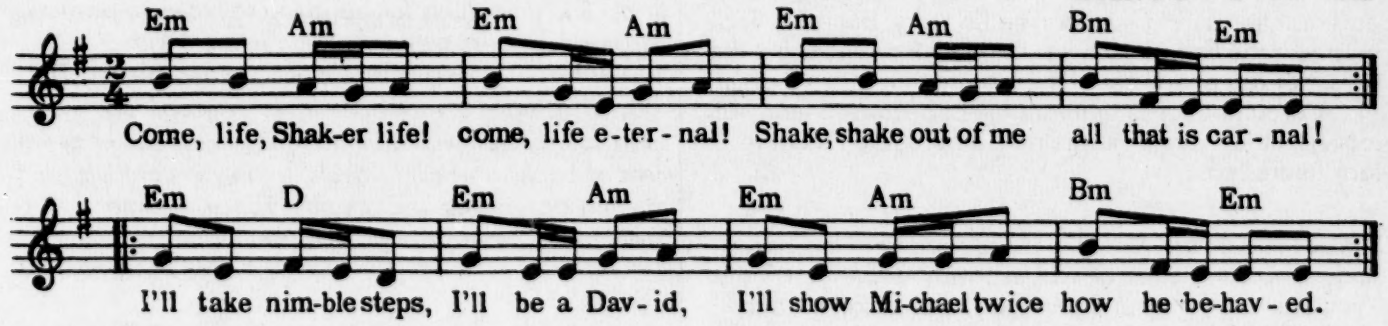
A people barred by their ministers from dancing and singing profane songs, could . . . enjoy the carnal tunes in religious disguise. This habit of 'robbing the Devil of his best tunes' goes back at least to the time of Luther, but it was never so marked as in nineteenth-century America. There, where pirates and frontier bullies got religion and sobbed out their guilt at public revivals, any musical stratagem was allowable.

37. COME, LIFE, SHAKER LIFE

With spirit ♪=208

FROM: p. 103 of *The Gift To Be Simple*, Edward D. Andrews (Augustin, N.Y., 1940). Used by permission. Seamus Ennis says this tune resembles a 12/8 Irish jig.

GUITAR– 2A
BANJO– 1 or 2A

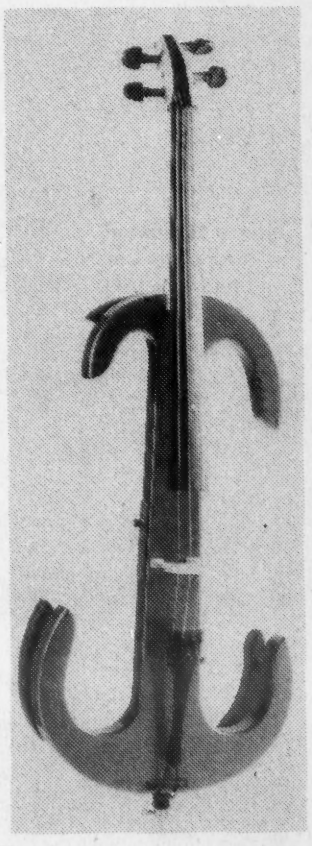


Strings

It took years of switching brands and spending piles of money for me to find favorite strings for guitar, mandolin, etc., and I'd sooner avoid a lot of brand-switching at violin string prices. Articles found in ***Strings*** *(such as Norman C. Pickering's "Modern Strings," Winter 1988 issue) could save a whole bank-vault-full of trial and error. While the magazine limits itself to bowed stringed instruments, it doesn't seem to exclude any musical form.* ***Strings*** *assumes the reader has more than a casual interest in its subject matter; this is no violinist's* ***People Magazine****. You won't "read it here first — Darol Anger: Jimmy Swaggart's Second Cousin," but you can find out which electronic pickup allows you to hear him so well in concert. Also found in Winter '88 is a 1988 Summer Study Guide with over 70 listings ranging from Suzuki to Scottish, chamber to orchestral, jazz workshops to repair clinics. The final pages of the quarterly are dedicated to the "Marketplace" (a how-to-contact section) and the "Sale Reports" (a description and price section gleaned from four separate auction houses).* —*Michael Stadler*

•

Rosin should not be allowed to accumulate on strings or instrument, but should be wiped off with a clean dry cloth. No solvents should ever be used because of the risk of damaging the varnish. Most players use more rosin than necessary; once thoroughly conditioned, clean bowhair will hold rosin dust for amazingly long periods. Excess is merely deposited on the instrument. Oily atmospheric contamination of bowhair is the principal cause of "slippery" bows; the film prevents adhesion of the rosin particles. Bowhair does not wear out; careful professional cleaning can restore it to full performance. Unless too many hairs are broken, there is little reason for rehairing. Clean bowhair is smooth and shiny — there are no hooks or scales which cause the string to vibrate. The adhesive action of the rosin is responsible for the stick-slip action that generates the sound.



T. F. Barrett Cello. This maker's violins are well suited to the player who craves electricity in a handmade instrument.

Strings
David A. Lusterman, Editor
$20/year
(4 issues) from:
Strings
Subscription Service
P. O. Box 767
San Anselmo, CA
94960
415/485-6946

Just Enough to Make a Story

This slim volume offers much more than sources, although there are these — story- and songbooks; storytellers on record, book, and film; books about folklore and fairy tales. My favorite resource lists are the index to "active heroines" and "stories in service to peace."

Even more valuable is the insightful, experience-derived advice Schimmel offers. Never preachy, she speaks to the value of storytelling — motivating kids to read — with warmth and sagacious enthusiasm, and helps you choose, learn, and tell a story gratifying to teller and told.

—Sarah Satterlee

•

There is no rule that says a teller must meet the eye of each listener during the course of a story, but if you look mostly at the floor or ceiling, the audience could get the idea that you are afraid of them or not interested in them. I look around a lot at different faces, because I feel that looking at just a few people puts a burden on them to look interested.

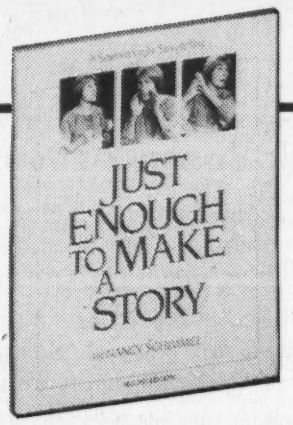
•

When I tell a story, I usually try to sound not like somebody else, but like me at my best, without the "uhs" and "you knows" that spatter everyday conversation, and without the bright cheerfulness that comes over even the most sensible people when they talk to the very young.

•

I usually warn the audience if I am going to tell a scary or bloody story; then they can brace themselves, and say "That wasn't so scary" afterwards. And it wasn't so scary, listening in a group, but it might be, thinking about it alone later. Kathryn Windham, who tells ghost stories most convincingly, also passes on a few beliefs about how to keep ghosts away at night; the simplest being to place your shoes with one pointing toward your bed and one pointing away.

Nancy Schimmel and assistant telling a tale.



Just Enough to Make a Story
(A Sourcebook for Storytelling)
Nancy Schimmel
1978, 1982; 56 pp.
$9.75
($10.75 postpaid) from:
Sisters' Choice Press
1450 6th Street
Berkeley, CA 94710

or Whole Earth Access

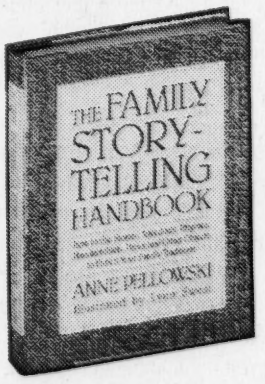
•

People tend to remember liking certain stories at a younger age than they actually did, and consequently try myths, fairy tales, and *Alice in Wonderland* on children too young for them. . . . The more complicated fairy tales require an audience much older than five, as do the myths, whose power and strangeness is lost in simplified versions intended for younger children.

The Family Storytelling Handbook

For years I've wanted a book about family storytelling to recommend to my storytelling audiences and classes. Now it's here and the right person has written it. Anne Pellowski knows a heap about storytelling around the world, and she also had lots of little nieces and nephews with big ears. She goes beyond bedtime to talk about storytelling for holidays, birthdays, family reunions, car trips. She gives hints for adapting folktales to particular kids and suggestions for holding interest with stories about family incidents, traditions, names, places. The stories included involve little tricks or props that work particularly well with intimate audiences. She ends with lists of books, stories, festivals, and even contacts for finding storytelling in England, France, Denmark, Australia, and Japan. A wise and useful book.

—Nancy Schimmel



The Family Storytelling Handbook
Anne Pellowski
1987; 150 pp.
$15.95
postpaid from:
Macmillan Publishing Co.
Mail Order Dept.
Front and Brown Streets
Riverside, NJ 08075
800/257-5755

or Whole Earth Access

•

I am convinced that the single most important story that each child hears is his or her birth story. The sense of being wanted or unwanted, of being an individual with interesting characteristics or just another statistic with no personality, of knowing who one is and one's place in the world or of feeling lost — all of this is conveyed most deeply in the way in which parents tell a child he or she arrived in the world (or the way in which they avoid the subject altogether).

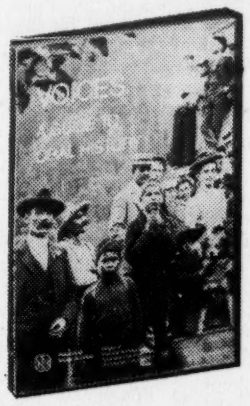
•

So many stories focus on the oldest or youngest child in a family. Since I was a middle child myself, I made sure, when telling stories to my nieces and nephews, that I concocted some tales in which it was the middle son, or the second or third daughter, not the youngest, who triumphed over difficult odds.

Voices

My favorite all-round guide to the history and intent of oral history. Very useful for the beginner as it addresses a lot of issues in a simple way: legal and ethical considerations, preservation of oral history, the interview itself, etc. —*Cliff Martin*

Voices
(A Guide to Oral History)
Derek Reimer, Editor
1984; 74 pp.
$7 (Canadian)
postpaid from:
Crown Publications
546 Yates Street
Victoria, B.C.
V8W 1K8
or Whole Earth Access



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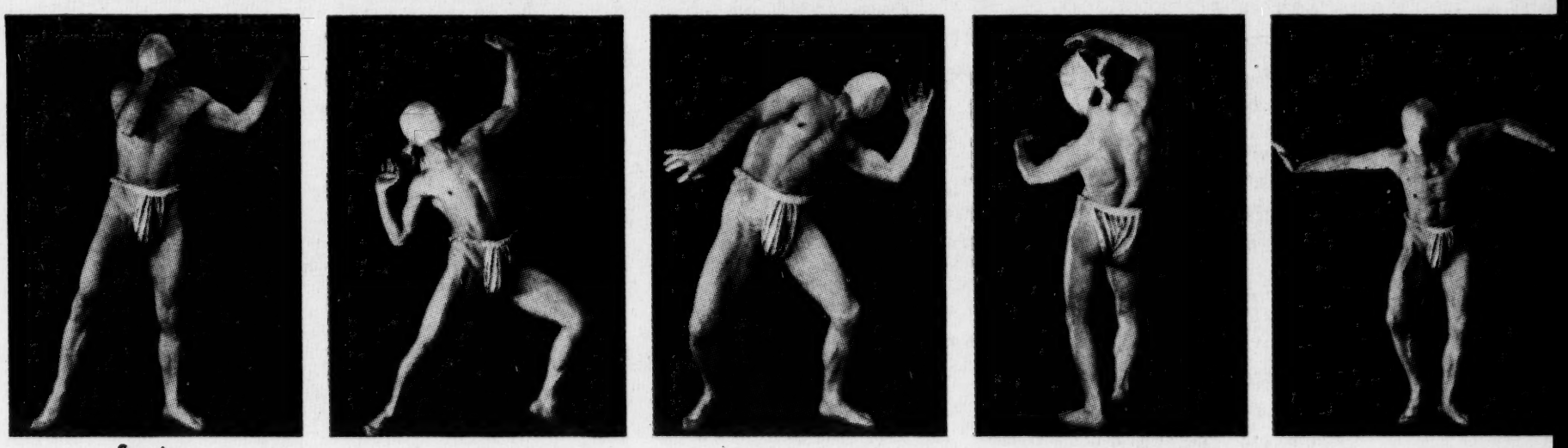
The arguments against transcription are twofold. First, transcripts are only a poor reflection of the original recording and are devoid of a great deal of the meaning implicit in expression, accent and inflection. The transcript is like a musical notation, a kind of two-dimensional substitute for something much more complete and rich. . . . Second, and even more significant, is the expense of the process and the amount of time involved.

The proper set-up for a two-microphone interview. The mikes are placed close to both speakers; the recorder may be easily monitored; the interviewer may consult the question set without interfering with the microphone; eye-to-eye contact is easily made.



Sports.

Words on Mime

I remember seeing Marcel Marceau when I was little and making my friends at recess the next day wriggle and shriek as I performed The Kiss.

Speaking on the art of mime, Decroux, Marceau's teacher, does with words what a mime does with body: makes manifest in you the reality of what his performance only suggests. Here, you are the mime, with his passion, intellect, spirit, grace.

Had I been a mime in 3rd grade, my friends would have swooned. —*Sarah Satterlee*

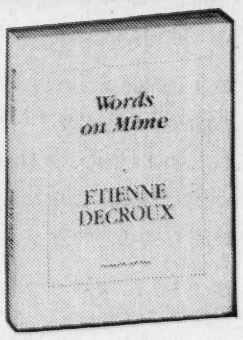
•

I was born to love mime.

The body is a glove whose finger is thought. *''Pensee, pousee, pouce et pincee,''* which in French are almost homonyms, are also almost synonyms. (''Thought, pushed, thumb, pinched.'') Our thought pushes our gestures in the same way that the thumb of the sculptor pushes forms; and our body, sculpted from the inside, stretches. Our thought, between its thumb and index-finger, pinches us along the reverse flap of our envelope and our body, sculpted from the inside, folds.

Mime is, at the same time, both sculptor and statue.

Words on Mime
Etienne Decroux
1985; 180 pp.
$12
($13 postpaid) from:
Mime Journal
Theatre Dept.
Pomona College
Claremont, CA 91711



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With us, gymnastics are reduced to beautiful movement for a long time. Beautiful movements are difficult. This perhaps arises from the fact that, since the body we have in mind is the corporeal expression of civilization, in order to achieve it, we must fight against our nature. Voltaire said: ''To do good, you must climb upward; to do evil, you have only to let yourself slide.''

Beauty is to the body as goodness is to the heart.

•

Everybody is not a musician, or a sculptor, or a poet, or a doctor or a chauffeur. Those who practice these professions do not do so incessantly, whereas everybody does mime, even when asleep. If it is impossible to represent matter without form, it is also impossible to imagine a body without attitude. Being a mime or not being one, does not depend on you, for you are incurably one.

The Cryonic Suspension of Alcor Patient A-1068

by Corinne Cullen Hawkins

WE'VE RUN SEVERAL ARTICLES recently that poke through the dark borderland between life and death, animate and inanimate: "Toward Artificial Life" (#58), "The Rights of Robots" (#59), and "If We Can Keep a Severed Head Alive" (#59). In this vein, "The Cryonic Suspension of Alcor Patient A-1068" continues to raise questions about where life ends — commonsense assumptions no longer hold.

Cryonic suspension is the freezing of a human body for thawing at some future date. Although some cryonicists opt for whole-body suspension, others prefer to preserve only the head (neuropreservation). What follows is a chronological description of a neuropreservation; the client was a female from Wisconsin with lymphoma (cancer) and a member of Alcor, a non-profit cryonics organization. Thanks to Mike Darwin and H. Keith Henson of Alcor Life Extension Foundation Inc. (4030 North Palm #304, Fullerton, CA 92635; 800/367-2228) for generously providing the details of the case.

2:48 a.m. *Cryonics client pronounced legally dead by physician upon respiratory and cardiac arrest.*

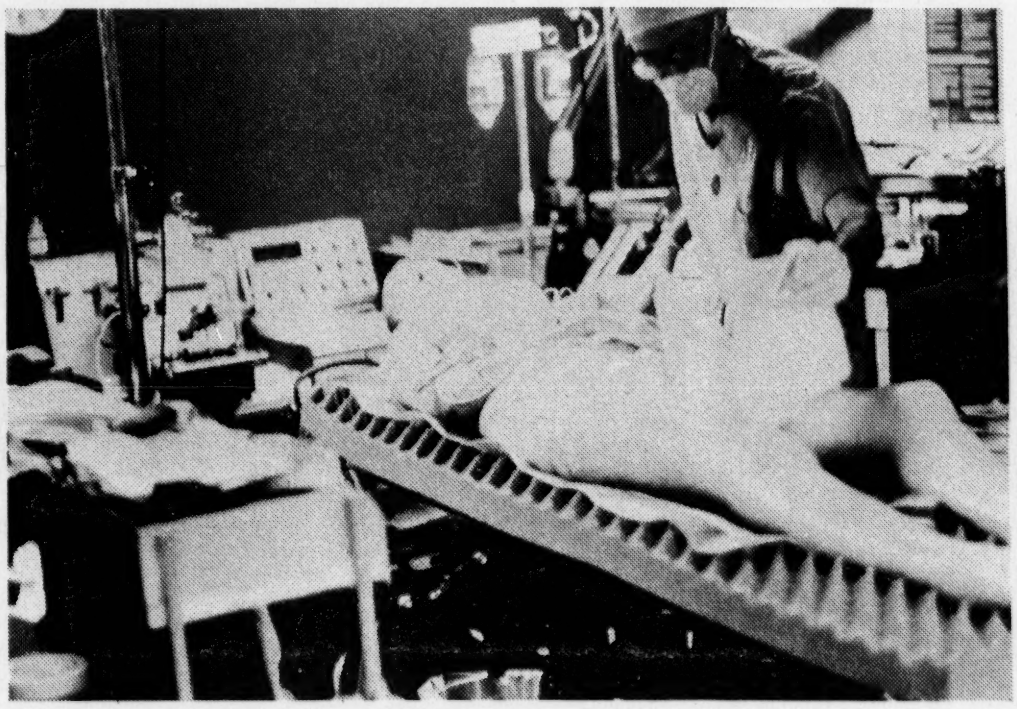
2:52 a.m. *Client is coupled to a heart-lung resuscitator (known as a Thumper) a mechanical CPR device which provides external massage to keep the heart pumping.*

Transport medications are administered to minimize the effects of inadequate gas exchange and to protect the brain against ischemia ("no blood flow") damage. Sodium pentobarbitol slows brain metabolism, dextrose keeps brain swelling down, Narcan keeps blood pressure up, metocurine prevents muscle shivering, etc. The goal in using these drugs is to minimize cell damage.

The client is cooled externally with Zip-Loc plastic bags filled with finely crushed ice, and a tube is stuck down the trachea to keep the tongue from closing the airway.

Client is moved to a mortuary.

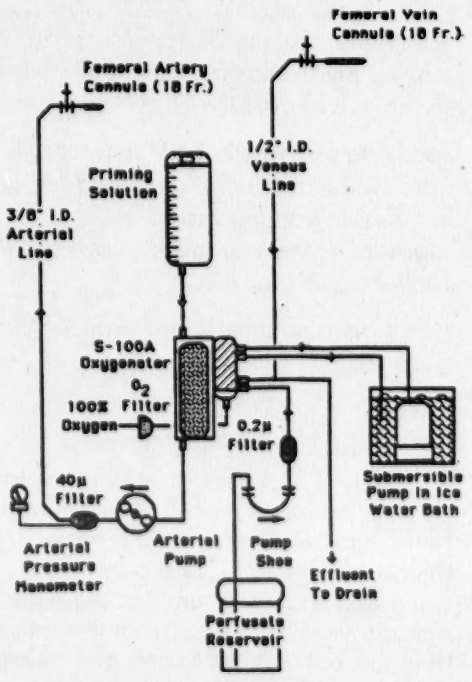
4:32 a.m. *there is a femoral cutdown (an incision with a #10 scalpel blade) to couple the client to the blood pump and oxygenator. The femoral blood vessel supplies blood to the legs. The femoral artery was located easily but, in this instance, a serious problem was encountered, when forty-five minutes of searching and expansion of the wound did not result in the location of the femoral vein due to client's massive edema (excessive accumulation of fluids) and the client's prior history of phlebitis which had damaged the vein. When technicians switched to the other leg, the femoral vein was located immediately.*



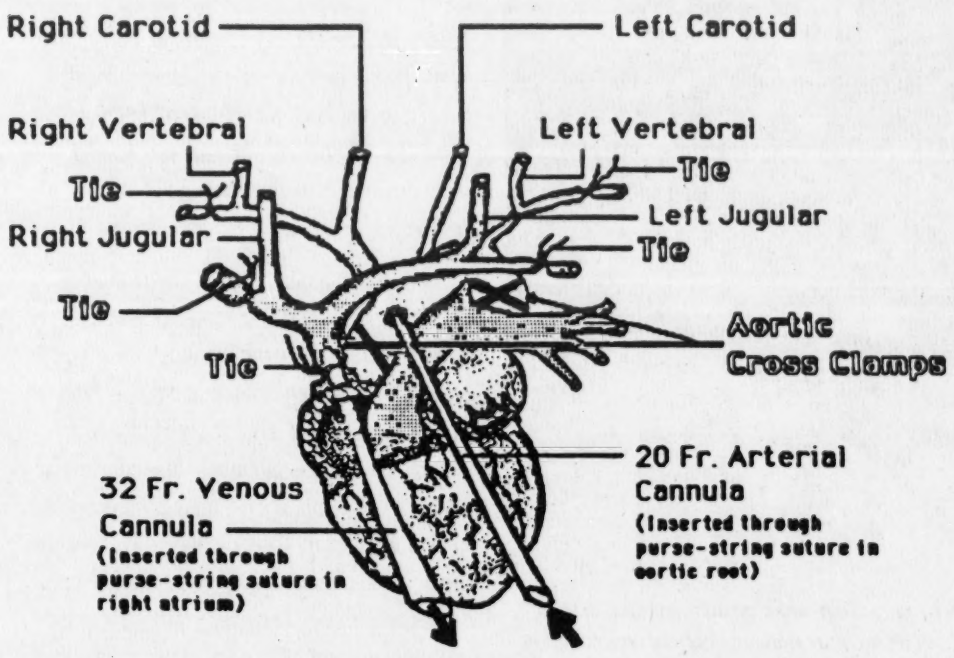
A-1068 shortly after arrival. An initial examination disclosed the presence of rigor in the jaws and forearm.

After location of the left femoral vein, the heart-lung resuscitator was discontinued for approximately ten minutes, stopping the flow of blood to make cannulation easier. A cannula (tube) was inserted, and by this time, the client's temperature was under 25 degrees centigrade.

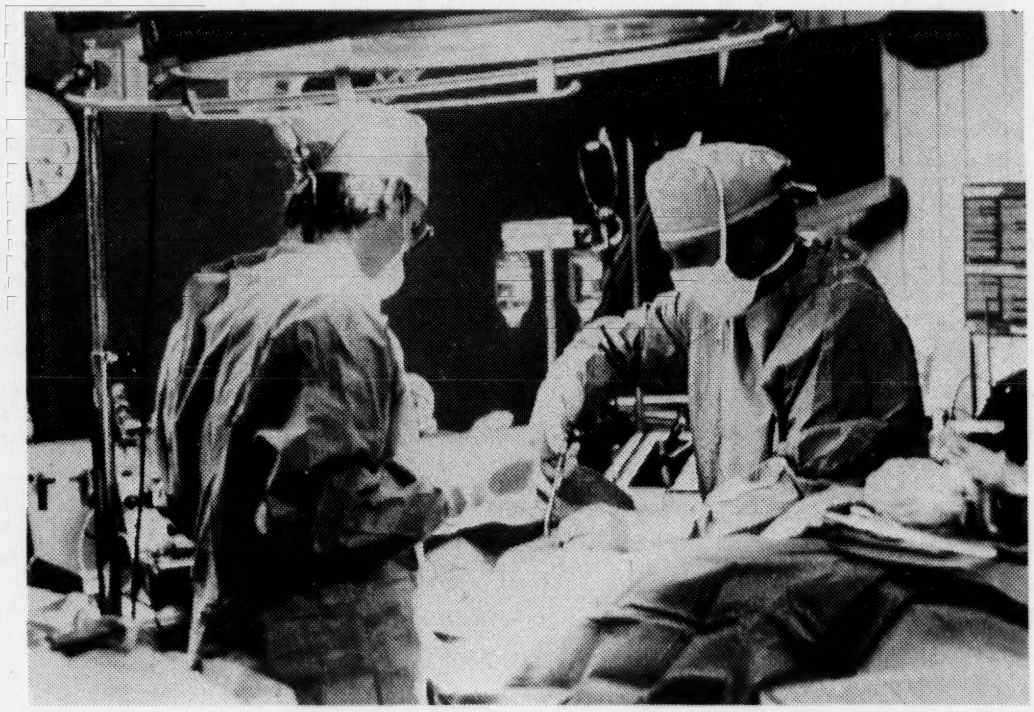
6:10 a.m. *With the cannula in place, the client is put on bypass with a portable blood pump (takes the place of the heart) and a bubble oxygenator (takes the place of the lungs). The heat exchanger of the pump is packed in ice, cooling the blood substitute that passes through*



Portable extracorporeal circuit.



Vascular isolation for neuropreservation.



The chest, neck and scalp are prepared for surgery. A temperature probe was placed in the left choana to monitor brain temperature.

it. Once the client is on the pump, she cools quite rapidly to 10 degrees centigrade.

***6:40 a.m.** A total body washout with thirteen liters of MHP-1 (a perfusate) is performed. This involves opening one side of the blood circuit and pumping in a blood substitute that lacks clotting ability. Process was terminated at a little below ten degrees centigrade.*

Client transferred to a metal shipping case containing a rubberized canvas body pouch. She is packed in ice from head to toe for shipment to California. The metal case is placed inside a wooden shipping case to act as a thermal and mechanical protector during air transport.

Shipping case placed in walk-in cooler to conserve the ice inside. Cooler temperature checked frequently with two thermometers to insure that the temperature stays above freezing, during the six-hour wait for departure time.

***9:20 p.m.** Plane arrives in California. En route to cryonics facility within forty minutes. Client unloaded from the van and transferred to the staging area behind the operating room. Last minute scrubdown of operating room and calibration of the test equipment.*

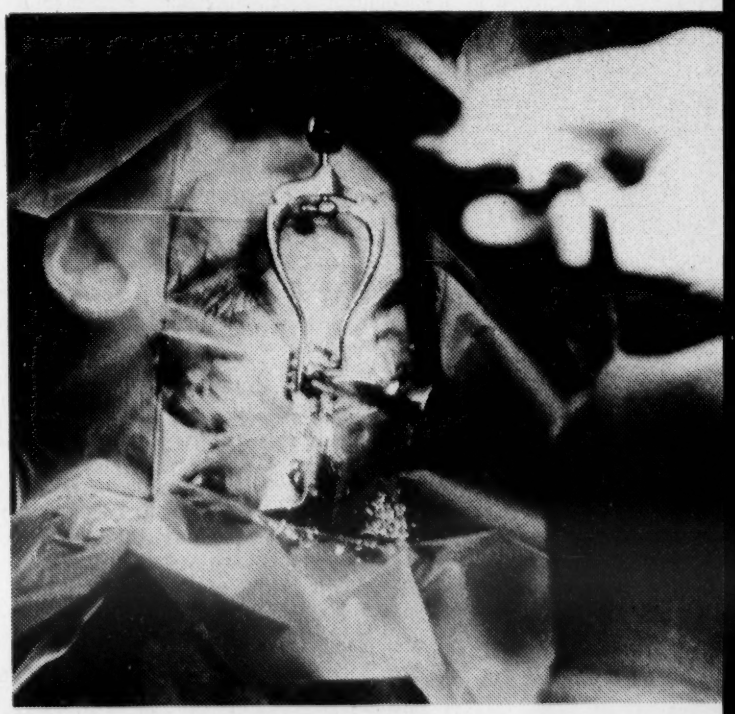
***10:47 p.m.** For the final perfusion, technician cuts open the chest and exposes the heart (as if for heart bypass surgery). Cannulas placed in heart and blood vessels with purse-string sutures. All blood vessels are tied off except for the carotids and vertebrals, the arteries leading to the head. This isolates the head from the rest of the body, creating a circuit from heart to head and back.*

***2:16 a.m.** Freezing-protection agents (glycerol) are added to the perfusate, which gradually replaces more and more blood with each circuit. Paired arterial and venous samples are drawn at fifteen-minute intervals during perfusion to determine pH and glycerol concentration, and for later evaluation of electrolytes and other chemistries.*

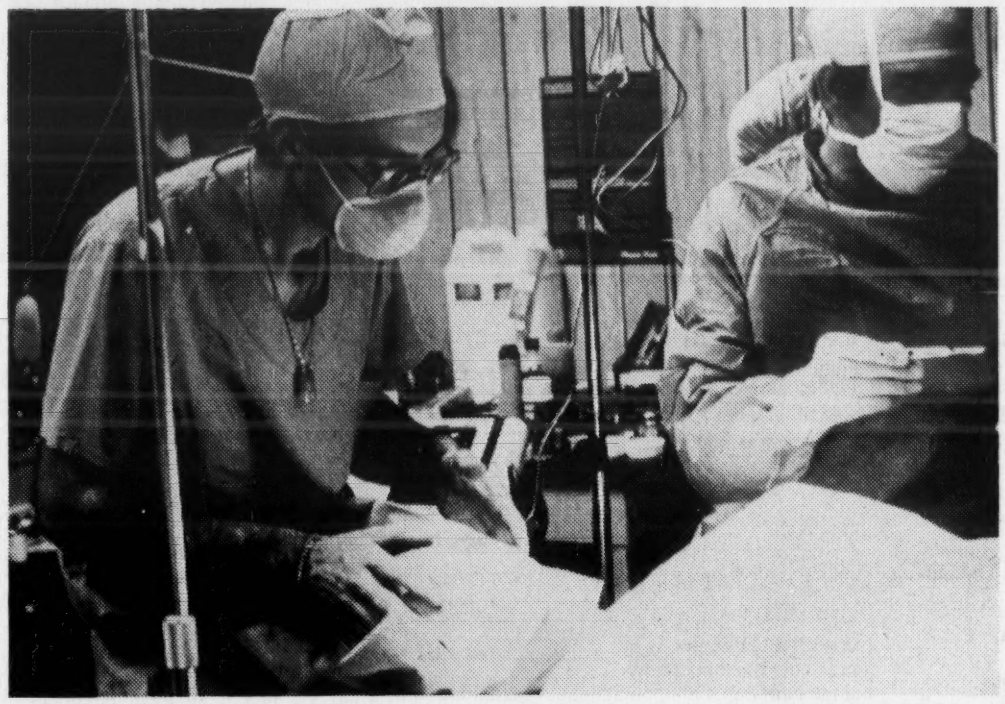
***3:15 a.m.** A burr hole was made in the skull over the left parietal lobe to observe changes in cerebral cortical volume (brain swelling).*

Perfusion was terminated before the target 3.0M glycerol concentration was reached in the venous perfusate, as a result of cerebral edema. The cortical surface was beginning to bulge against the margins of the burr hole. The cryoprotective perfusion lasted 158 minutes (the ideal is 400 minutes).

***4:54 a.m.** At the conclusion of glycerol perfusion, the line of demarcation between perfused and nonperfused tissue is sharp, beginning a few millimeters above the clavicle. The head and body are surgically separated between the fifth and sixth cervical vertebrae.* ►



The burr hole allowed usual monitoring of the cerebral cortex.



Cephalic isolation: A circumferential skin incision was made at the base of the neck. The muscles and other structures were severed down to the juncture of the 5th and 6th cervical vertebrae. A Gigli saw cut through the vertical column, freeing the head from the body.

Skin flaps were then closed over the stump of the neck using a skin stapler.

6:21 a.m. *The client (head) is enclosed in two polyethylene bags and submerged in an insulated bath containing 20 liters of silicone fluid precooled to -6 degrees Centigrade. Cooling to -77 degrees Centigrade took 28.5 hours. No leakage of the fluid into the plastic bags containing the client is noted.*

The following day, the client's "mortal" remains (severed body) are taken to a cemetery for cremation.

8:10 p.m. *Two days after "legal death," client is transferred from the silicone cooling fluid (where her temperature had been dropped to -77 degrees centigrade) to a -50 degree C. chest-type freezer, the floor of which is covered with a bed of dry ice. In this environment the protective polyethylene bags are removed and the client is transferred to a heavy polyester pillow case. The pillow case containing the client is then lifted by the "tail" of excess material and positioned inside a standard aluminum neurocontainer packed with dacron wool to prevent mechanical shock. The container nests inside a polyethylene tank, and the space between the container and the tank is filled with dry ice. The lid of the neurocan is closed and covered over with additional dry ice.*

This whole assembly is then transferred into an MVE TA-60 wide-mouthed cryogenic dewar — a very sophisticated thermos bottle. The TA-60 is closed and lowered via a chain hoist into a dual-patient dewar with a foot or so of liquid nitrogen in the bottom. Over the next twelve days, the client is slowly cooled to liquid nitrogen temperature by gradually lowering the chain-hoisted TA-60 closer and closer to the liquid nitrogen at the bottom. Since liquid nitrogen evaporates, more is added periodically.

2:45 a.m. *After twelve days, client is transferred to long-term liquid nitrogen storage in an MVE A-2542 multipatient dewar. The long-term maintenance (and the cost of suspension itself) is usually paid for with a $35,000 life insurance policy (head only).*

Reanimation will take place when nanotechnology engineering matures to the point where repair devices can mend damaged tissue. (There is, of course, no guarantee that an individual will be successfully reanimated.) ■

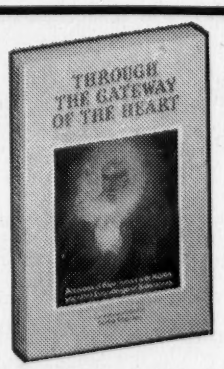
Through the Gateway of the Heart

This book could be subtitled "My Best MDMA Trip." It's a collection of short accounts of life-changing experiences by people who have taken the "empathogenic" drugs (MDA, MDMA, MMDA, and 2CB) in therapeutic settings, in the company of a psychotherapist or "guide." A useful concluding chapter offers guidelines for the "sacramental use" of these compounds.

The hasty criminalization of these substances in 1985 closed the door on their use as tools in psychological counseling, despite the protests of patients and therapists who had found that the "emotional warmth, well-being, euphoria, pleasure, joy, and sensuality" almost invariably produced could in some cases compress five months of weekly psychotherapy sessions into one five-hour trip. The loving, visionary experiences recounted here are as good an advertisement as any for renewed research into — and not repression of — these extraordinarily important "psychic catalysts" that unlock the heart.

—Ted Schultz

Through the Gateway of the Heart
Sophia Adamson
1985; 197 pp.
$14.50
($15.50 postpaid) from:
Four Trees Publications
P. O. Box 31220
San Francisco, CA 94131



or Whole Earth Access

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Some groups have experimented with night-time sessions, following the example of Central and South American shamanic cultures that use mushrooms or ayahuasca. However, since the onset of normal fatigue can appreciably shorten a session begun in the evening, others have resorted to daytime sessions. Typically, a group will assemble on a Friday evening, talk and share their intentions with one another, and sleep that night in the same building. Starting the session in the morning, they continue until evening, sleep another night; and then do the final sharing and celebration on the following (Sunday) morning.

The Adventure of Self-Discovery

Systematic clinical research in the use of psychedelic drugs was a major casualty of the cultural revolution triggered by LSD. Stanislav Grof, virtually the sole survivor of the original psychedelic researchers, began his research in Prague and moved it to the United States in 1968. Among the tens of thousands of psychedelic trips he investigated, as participant as well as observer, were thousands of legal LSD sessions with dying patients. His findings in that field — evidence of painkilling as well as spiritually uplifting potential of guided trips by terminal patients — remain as a challenge to those who must deal with the dying.

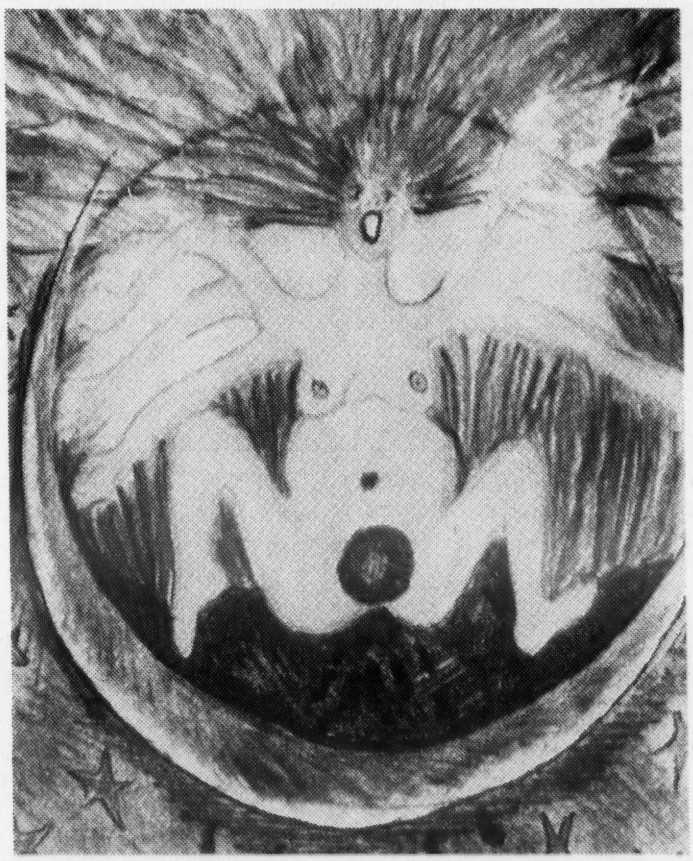
In this book, Grof lays out a preliminary cartography of consciousness. One of the theoretical lenses Grof uses to focus on the common elements of psychedelic experience is his idea of "Condensed Experience (COEX)" structures which emerge during different stages of psychedelic trips, near-death experiences, and other unusual states.

Many hundreds of times, Grof observed how various stages of what appeared to be the process of experiencing birth surfaced in these states. He also observed a range of religious, mythological, and paranormal phenomena, all of which he attempts to map in this book. Hindu gods, Nordic mythology, extraterrestrial guardians, archetypal entities abound in the psychedelic sessions Grof describes, and he provides a taxonomy linking mythological, religious, and deep psychological imagery with the cartography of the psychedelic journey. Of particular interest is the emergence of a new category of experience Grof has noted in recent years: the strong, often life-changing experience of knowing that the Earth is a living organism, and is wounded, and crying out to be healed. —*Howard Rheingold*

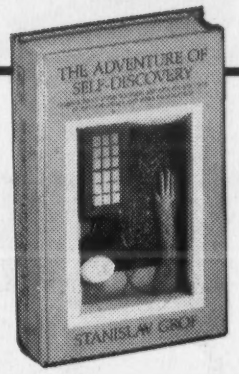
•

I will illustrate this remarkable type of experience by an account of a session with 150 milligrams of Ketalar (ketamine), a dissociative anesthetic used in surgery and veterinarian practice. It seems that after the administration of this substance, experiential identification with inorganic matter is particularly frequent.

> The atmosphere was dark, heavy, and ominous. It seemed to be toxic and poisonous in a chemical sense, but also dangerous and evil in the metaphysical sense. I realized I was becoming PETROLEUM, filling enormously large cavities in the interior of the earth. I was flooded with

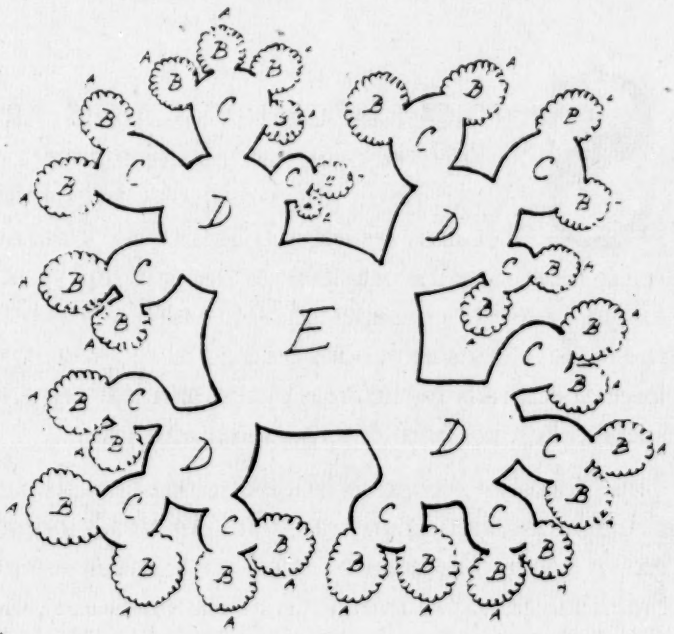


A painting representing a combined experience of being born and giving birth; it involved a simultaneous identification with the mother, the child, and the Great Mother Goddess.



The Adventure of Self-Discovery
Stanislav Grof
1988; 321 pp.
$12.95
($14.95 postpaid) from:
CUP Services
P. O. Box 6525
Ithaca, NY 14850
607/277-2211 or Whole Earth Access

> fascinating insights combining chemistry, geology, biology, psychology, mythology, economy, and politics.
>
> I understood that petroleum — immense deposits of mineralized fat of biological origin — had escaped the mandatory cycle of death and birth that the world of living matter is subjected to. However, the element of death was not completely avoided, it was only delayed. The destructive plutonic potential of death continues to exist in petroleum in a latent form and waits for its opportunity as a monstrous time-bomb. . . .



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A diagram used by Marie-Louise von Franz to illustrate the hierarchical structure of the unconscious. The outermost small circles (A) represent the ego consciousness of human beings. The deeper layers (B) depict the spheres of the personal unconscious discovered by Freud. Below lie the domains of the group unconscious of families, groups, clans, and tribes (C) and further the large spheres of the common unconscious of wide national units that share important mythological motifs, such as the Australian Aborigines or South American Indians (D). Finally, the central area constitutes the universal pool of archetypal structures shared by all of humanity (E); to this latter group belong such archetypal ideas as that of the Cosmic God-Man, Mother Earth, the Hero, the Helpful Animal, the Trickster, or Mana that are found in all mythologies and religious systems.

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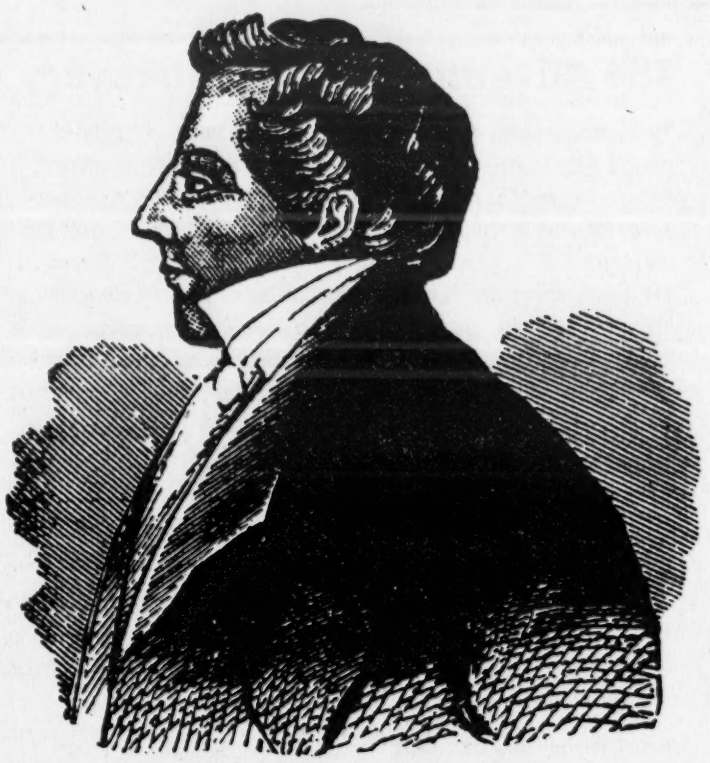
I would like to close the discussion of the most famous psychedelic materials by a brief reference to mind-altering substances of animal origin. The "dream fish" (*Kyphosus fuscus*) found off Norfolk Island in the South Pacific has a reputation among the natives for causing powerful nightmarish visions. Joe Roberts, a photographer for the *National Geographic Magazine,* broiled and ate some in 1960 and confirmed these claims. He experienced a powerful hallucinatory state with many elements of science fiction. (Roberts 1960).

The Church of Modern-Day Mormonism

BY PAUL DOUGLAS MALLAMO



Wife No. 19

JOSEPH SMITH, THE FOUNDER OF MORMONISM.

SERIOUS SOCIAL WATCHERS ARE lately enjoying fascinating changes occurring in the world of Christianity. Faiths are being transformed or are actively resisting transformation as they attempt to adjust to, or resist being affected by (usually impossible), the massive transformations taking place in society at large, specifically in the areas of communications and social relations, both interpersonal and group.

This process of accommodation and resistance is particularly fascinating to watch in America's homegrown Mormons, a faith based on founder Joseph Smith's visions/hallucinations, revelations/ideas, and translations/literary efforts (depending on your point of view). The Church of Jesus Christ of Latter-Day Saints (Mormon) is possibly the most aggressive, self-assured, conservative, well-organized church on earth, and is fast becoming one of the wealthiest and most politically influential both here and abroad. Throughout its history the Church has adapted very well to its American environment, managing to both deal effectively with outside pressures and yet maintain a definite aloofness, always insisting that it was and is God's only authorized church, restored to the earth since the demise of Christ's own, which was ostensibly diluted and eventually destroyed by the introduction of man-made doctrine. In response to persecution in Missouri and Illinois, Mormons pioneered the Great Basin, establishing their singular empire in the valleys of the Rocky Mountains. Later, when even there the mores of the nation overtook them, they abandoned the practice of polygamy, which had been a critical staple of the faith, in favor of better national relations and eventual statehood. A few years ago yet another Mormon hallmark was abandoned in the face of various pressures when blacks were finally admitted to the Mormon priesthood, ending over a century of racial discrimination.

What is happening now, and what is making for such interesting viewing, are Church reactions to possibly the most serious challenges it has ever faced, more serious by far to its institutional integrity than the persecutions at its founding or the eventual abandonment of central beliefs. This is the challenge to the Church's sacred history, its virtual core, and is the result of intense scholarly/historical inquiry into Mormon origins. Mormon beliefs are not strangers to hostile criticism, having generated controversy since their inception and during their development in the previous century. What's different is that today the criticism is backed by solid professional research and is occurring as the Information Age begins to kick into high gear, insuring wide and thorough dissemination. It should be noted that today many Christian denominations face the trial of scholarly examination, and even no less than the person of Christ himself is now subject to possibly the most intense scrutiny ever, often with profoundly disturbing results to the orthodox of many faiths.[1]

There are other issues. The role of women in Mormondom is debated by lay members more and more in the same terms in which the black priesthood issue was debated decades before. Women, virtually without voice in the decision-making bodies of the Church, have replaced minorities as the second-class Mormons of today, and how long they will consent to remain so only time will tell, though signs of their growing impatience are appearing.[2]

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1. A provocative summation and interpretation of scholarship centered on the life of Christ is Thomas Sheehan's 1986 book, *The First Coming — How the Kingdom of God Became Christianity.*

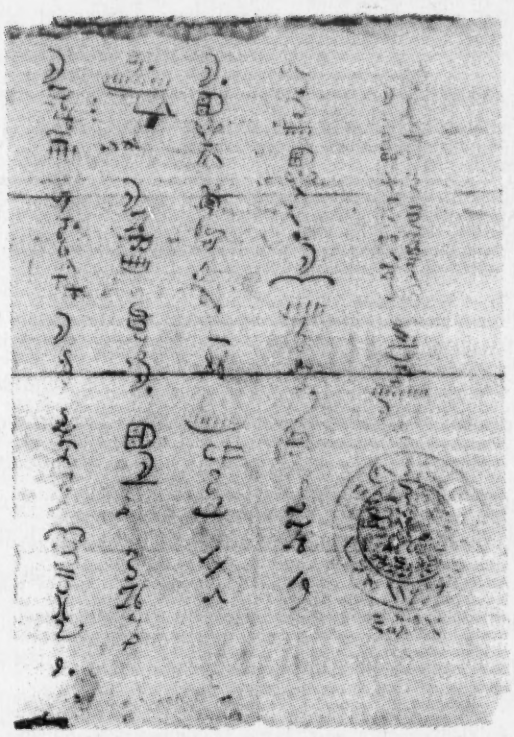
2. A fascinating account of one woman's struggle for equality is Sonia Johnson's extraordinary autobiography, *From Housewife to Heretic,* which details her battles with high church officials over the Equal Rights Amendment and her subsequent excommunication.

Another problem is the Church's and individual members' enthusiastic participation in government and big business. Some say that the Church itself is a big business, or, alternately, a business cult, both encouraging and benefiting from the worldly success of its members. (Faithful Mormons tithe ten to fifteen percent of their income to the Church, and the latest figures of which I am aware put Church income from all sources at well over six million dollars a day.) The achievement of financial success is an extremely important element in the lives of most Mormon men, leading frequently, if indirectly, to prestigious ecclesiastical positions.

Yet, with all its money, the Church's lack of involvement in the pressing problems of earth — starvation, warfare, ecodestruction, social injustice, disease — is striking. Mormons seem to view these things as either inevitable (sure signs of the Last Days), or of little consequence; they have more important work to be about, such as raising families in the faith, converting "gentiles" (non-Mormons) to the faith, accumulating more money and power in the national and international arenas, ostensibly in preparation for the role the Church sees itself playing before the Second Coming. (The Church's explosive international growth will likely soon require it to take the problems of earth a little more seriously, causing it to alter a few of its more radically conservative policies and adjust its programs to meet the needs of foreign members who, for instance, may be impoverished and illiterate.)

But the questions and problems related to the Church's sacred history are the most ominous because they threaten the foundations of the faith. More than any other major American church, the Latter-Day Saints depend on their history. It is a given that certain events actually and literally happened at certain times, usually as the result of a brief interface between man and God, specifically between one man, Joseph Smith, and God. Here are a few examples of problems related to that sacred history:

1 — The character of Joseph Smith. Arguments on this topic have been quite literally raging since the



The recently found transcript of the characters that Joseph Smith is said to have copied from the gold plates.

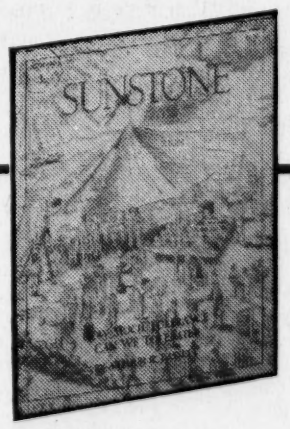
birth of Mormonism in the 1830s. Fawn Brodie's cornerstone biography of the prophet, *No Man Knows My History*,[3] focused the debate in scholarly circles, and lately a deluge of work on Smith and early Mormonism has both confirmed much of Brodie's earlier research and enlarged the debate as well. Brodie and later writers examine the seemingly direct influence of Smith's father's dreams (which his father had recorded) on the content of some of the prophet's later "translations" of ancient documents, his dubious financial dealings, and his entanglement with the occult, especially treasure hunting through the medium of peepstones. Most embarrassing for modern Mormonism, which has steadily developed a broadly repressive attitude towards sex, was his sexual relationship with numerous women besides his wife, including the wives of other men, largely, though perhaps not exclusively, through his introduction of "the princi-

3. 1945, 1971. Alfred A. Knopf, New York.

Sunstone • Dialogue

The best perspectives from which to study the continuing evolution of Mormonism consists of two independent journals devoted exclusively to Mormon issues, ***Sunstone*** *and* ***Dialogue****. Both originate in Salt Lake City and both print the spectrum of contemporary opinion, commentary, and research, including historical research, from orthodoxy to outright heresy.* ***Sunstone*** *is semi-monthly and contains more current events and news items than* ***Dialogue****, which is quarterly and presents highly professional research, commentary, and some fiction and poetry, in a beautifully polished format. Both routinely provoke the ire of Mormon leaders, and both find their readership growing steadily as more and more Latter-Day Saints look beyond the official line for answers to troubling questions and new directions for the future.*

—Paul Douglas Mallamo



Sunstone
Elbert Eugene Peck, Editor
$32/(12 issues)
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Sunstone
331 South Rio Grande St.
Suite 30
Salt Lake City, UT 84101
801/355-5926

Dialogue
Linda King Newell and
L. Jackson Newell, Editors
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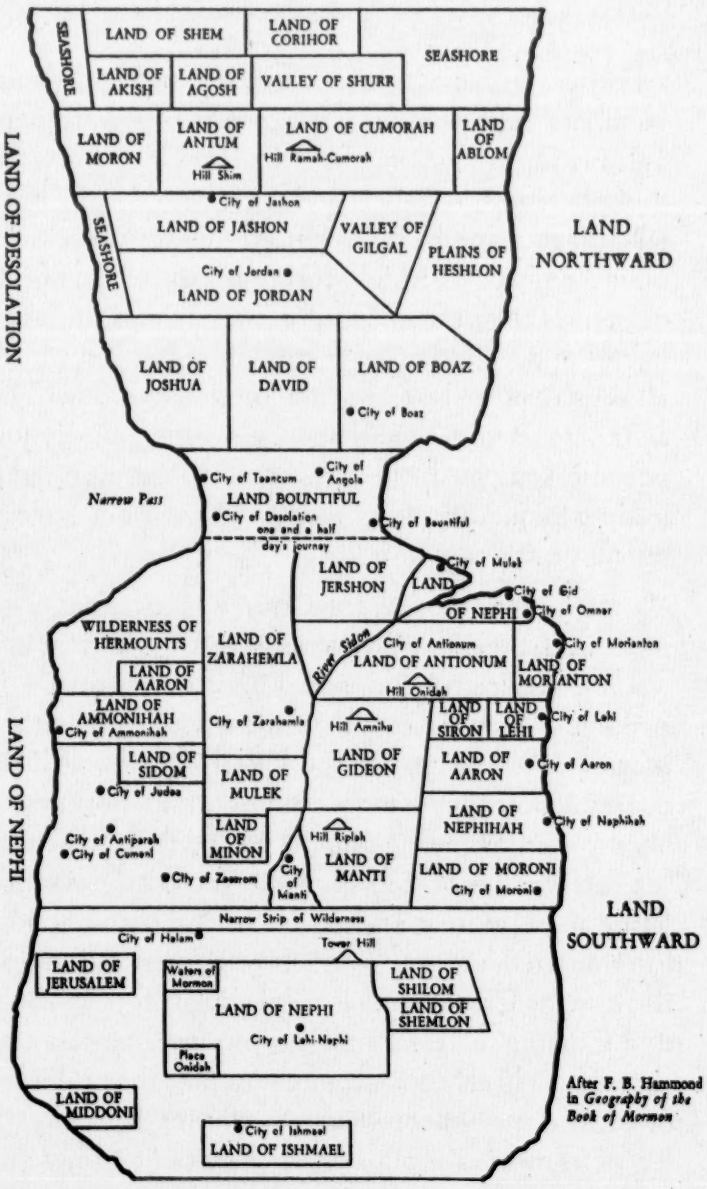
Salt Lake City, UT 84103
801/355-9492

ple," plural marriage, which both he and other Mormon leaders practiced clandestinely years before it became institutionalized Church-wide. Obviously these activities throw doubt on Joseph's prophetic claims to be the earthly representative of the same god who gave us the Ten Commandments — tricky stuff to handle from the pulpit. Solution: pretend none of it ever happened, a tactic the Church is finding increasingly harder to execute.

2 — Joseph Smith's visions. The First Vision, the initial appearance of God the Father and Jesus Christ to a young, earnest and inquiring Joseph in a grove of trees on the morning of a spring day in 1820, is the seminal event in Mormonism. But the version canonized in Mormon scripture represents a somewhat different event from those described by Joseph in other accounts, including versions related to confidants. Reconciling these conflicting stories in justification of the canonized version has been and will continue to be a major problem for the Church as its early years come under increasing historical scrutiny; viewing Joseph's visionary experiences against a backdrop of similar phenomena occurring to a wide variety of people of differing supernatural persuasions further dilutes the Church's claim to exclusivity.

3 — The Pearl of Great Price. Another Mormon scripture, besides the Bible (which Mormons believe contains true scripture unfortunately but unavoidably mixed with the doctrines of man), the Doctrine & Covenants (a record of revelations received by Joseph and a few later prophets), and the Book of Mormon (discussed below). The Pearl of Great Price contains what Joseph claimed were his inspired translations of sacred scripture from ancient papyri which he obtained from a traveling show. Recently some of these papyri surfaced at the Smithsonian Institution, and subsequent translation by contemporary scholars has entirely failed to substantiate Joseph's claim for the papyri, proving them instead to be an ordinary Egyptian funerary document.

4 — The Book of Mormon. This key Mormon Scripture is represented as a record of actual events occurring on the American continents from B.C. 600 to A.D. 421. "Translated" by Smith with peepstones from ancient metal plates, the location of which Smith claimed was disclosed to him by an angel, the book is a record of the rise and fall of a Hebrew civilization transplanted to America by God, written by the ruling members of that civilization (the residue of which is said to be some of the American Indian groups) in a language called "Reformed Egyptian." Never taken seriously by professional non-Mormon archaeologists or anthropologists, the book now also has its back against the wall in terms of textual criticism as well. The Church is slowly modifying the claims it makes for it, but the book will likely survive as a remarkable tome of faith and parable. What will be interesting is how long the Church maintains its historical claims in the face of ever-building contrary evidence.



The geography of the relic Hebrew civilization revealed to Joseph Smith through his translation of the Book of Mormon. Attempts to establish congruence with modern maps have failed.

With all its problems, Mormon religion and culture also have many achievements and strengths to their credit, some of which are held in understandably high regard by the same American society that is so critical in other areas. The Church was one of the first influential groups in the west to attempt living with rather than over or against the aboriginal inhabitants. (The Book of Mormon predicts that, as Sons of Israel, the Indians will someday rise in glory.) And few others would have attempted to pioneer many of the desolate areas the Saints laid claim to in the Utah wilderness, especially the forbidding lands in southern Utah, extreme northern Arizona, and eastern Nevada, claims that grew and prospered through the imagination and industry of optimistic people. Today the same spirit survives in the Mormon emphasis on family unity, self-reliance, individual self-worth, meaningful living (both in mortality and beyond), integrity, and their own particular brand of the Protestant work ethic. How or if these values will change with other areas of Mormon life remains to be seen. ■

Another excellent source for unofficial Mormon history, criticism, commentary, and fiction is: Signature Books, 350 South 400 East, Suite G-4, Salt Lake City, UT 84111.

Faith and Belief

By juxtaposing faith and belief across civilizations and down the ages, Professor Smith sliced through my cultural envelope and the view through that slit changed my understanding of our own culture. One fact stands out: faith and belief are not the same. Belief is the map, faith the territory, and the confusion of the two has caused havoc in western society. Faith — the ability to value and draw on the transcendent aspect of life — is the impulse underlying the cacophony of world beliefs. The idea that a religion is defined by its set of beliefs, rather than by the faith it generates, is a recent western invention. The focus on intellectual propositions (belief) as the foundation for religion is part of a process that has ultimately led to the elimination of the transcendent dimension (faith) from everyday life, the secularization of western society, and the spiritual impoverishment known as angst, alienation, and existential despair. It turns out this chunk of reality the secular world view leaves out is essential, not peripheral. —*Corinne Cullen Hawkins*

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That a Chinese may belong to two or three religions at once, as the outsider has ineptly put it, or more accurately, may have faith through more than one tradition, may be personally involved in or through them, has here its counterpart in that the Westerner has (and should have) two involvements, in the tradition from Greece and the tradition from Palestine.

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For many, the idea that believing is what religious people do was thus itself a component of their new outlook. To a significant degree, the very concept ''believing/belief'' had become an integral aspect of the new detranscendentalized ideology: an intellectual instrument for secularizing one's understanding of the human. ''Believing'' had become a category of thought calculated to denature the religious life.

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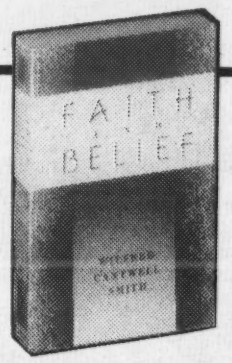
The word ''Hindu'', as we have seen, is a foreigner's term, not only in origin but more or less until to-day. People in India have not thought of themselves as Hindus.

Faith and Belief
Wilfred Cantwell Smith
1979; 347 pp.
$12.50
postpaid from:
Princeton University Press
3175 Princeton Pike
Lawrenceville, NJ 08648
800/777-4726



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No one in India has ever tried to be Hindu. They have tried simply to be human, to live properly, adequately, truly, as best they could discern how it may be done. To their attempts to do so — since they differ from the attempts of others of us — we on the outside have given a label: ''Hindu'' (which meant, simply, ''Indian''). Indians across the centuries have aspired to be authentically human, in an absolute, cosmic sense. They have known that to be authentically human, to live rightly, is not a whimsical matter, is not merely an historical, circumstantial matter, but is a cosmic one. For to be human, they have recognized and affirmed, is to live a life within the material realm but one on which the realm of spirit impinges. For them to be Hindu has been to be human — not in a grandiose but almost in a casual sense.

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Faith is deeper, richer, more personal. It is engendered and sustained by a religious tradition, in some cases and to some degree by its doctrines; but it is a quality of the person, not of the system. It is an orientation of the personality, to oneself, to one's neighbor, to the universe; a total response; a way of seeing whatever one says and of handling whatever one handles; a capacity to live at a more than mundane level; to see, to feel, to act in terms of, a transcendent dimension.

Belief, on the other hand, is the holding of certain ideas. Some might see it as the intellect's translation (even reduction?) of transcendence into ostensible terms; the conceptualizing in a certain way of the vision that, metaphorically, one has seen; at a less spontaneous level, that one hopes to see.

When the Spirits Come Back

*Readers who have enjoyed the writing we have run the last two years by Janet Dallett (''When the Spirits Come Back,'' **WER** #50, ''A Time for Thieves,'' #53, and ''Foundations of Madness, #58) will be interested to know she has a book out. Dallett is a Jungian analyst who bailed out of success, institutional structure, and Los Angeles to begin a therapeutic center in the Pacific Northwest.*

Called Tamanawas (Chinook for ''guardian spirit''), it offers ''round-the-clock care to individuals in their homes, supporting the natural healing process that we believe lies behind many psychotic episodes. When they understand this approach to treatment, most people move through the process quickly and relatively easily without hospital or medication, and emerge with new understanding and acceptance of themselves. Many choose to continue with depth psychotherapy aimed at understanding and integrating the breakdown's meaning. This work tends to prevent recurrence of psychosis.''

Small, community-centered and deliberately avoiding government funding (''we find that bureaucracy obstructs the healing process''), this is a good service in need of donations (Tamanawas, P. O. Box 1383, Port Townsend, WA 98368).

I'm not a great reader of things psychological, and perhaps because of that what draws me to this book is its lack of any therapist/patient distancing. Dallett describes her own mistakes, hang-ups and growth, in relation to her patients and her professional career. Her candor makes clear what a collaborative effort any successful therapy is. This is a book about paying attention to dreams and coincidence, and about healing by making whole.
—*Richard Nilsen*

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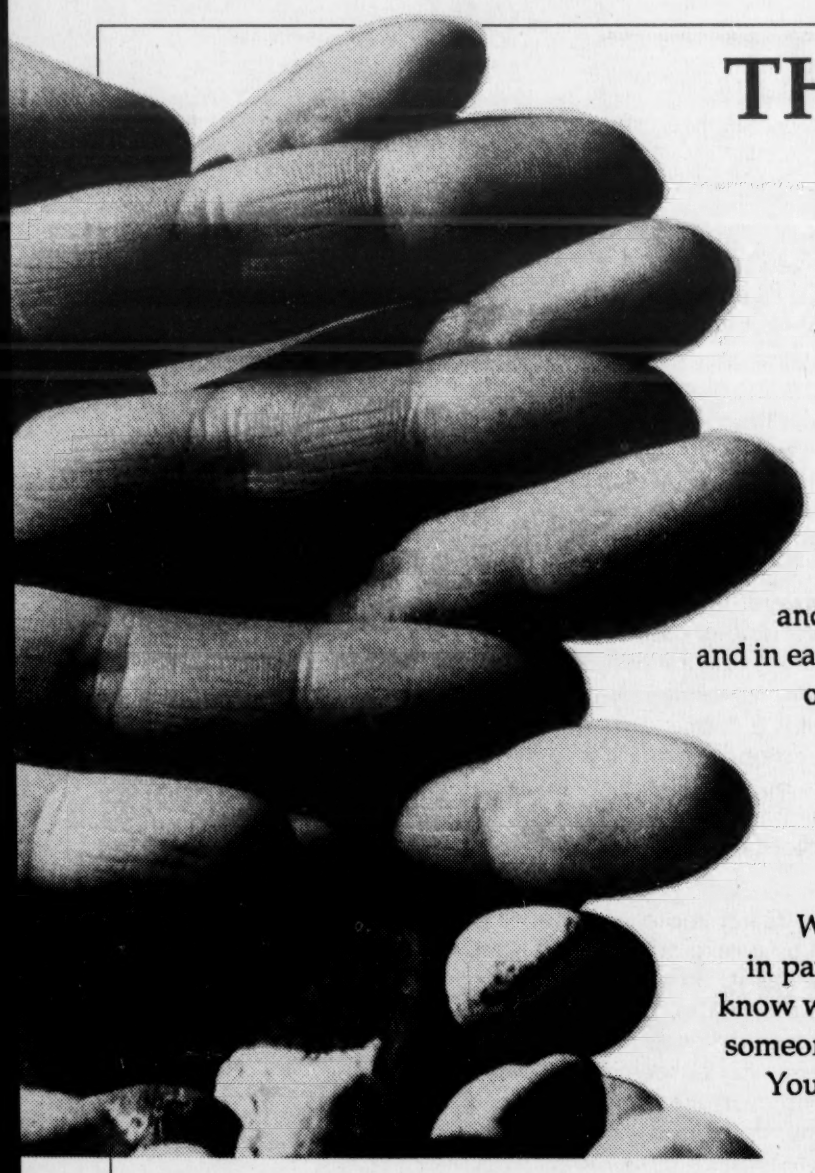
Lunacy and creativity are two sides of the same coin. Breakdown of body or psyche is the first phase of a creative process which, like the paradoxical genius of nature itself, aims toward wholeness, a moonlike condition in which light and dark are of equal value and import. Whenever an individual or a society becomes too one-sided, too separated from the depth and truth of human experience, something in the psyche rises up and moves to restore authenticity. Breakdown momentarily sets life free from the demands of ordinary reality and activates a profoundly spiritual process, an inner rite of passage with its own healing end.

When the Spirits Come Back
Janet O. Dallett
1988; 157 pp.
$14
($15 postpaid) from:
Inner City Books
Box 1271, Station Q
Toronto, Canada M4T 2P4
416/927-0355

or Whole Earth Access



THE RELEASE OF INTUITIVE RITUAL

BY MORRIS BERMAN

There is one class that takes place every year in the courses I teach that is unlike any of the others, and it is the class on dreams. Students are asked, the week before, to bring in a dream they have had recently or in the distant past, recorded in as much detail as possible. The next week, they come to class and read these out loud (more often, they repeat them from memory), and in each case, all of us mull over what the dream might be about. Only one class out of about twenty-four in the academic year is devoted to this topic; the remaining twenty-three or so are concerned with the usual sort of academic analysis that goes on in universities. Yet inevitably, the course winds up being labeled "the dream course," especially by students who are not enrolled in it.

We are desperate for spiritual guidance in our lives. In our society in particular, we feel this archetypal starvation acutely, and we don't know where to go for nourishment. A Machiavellian primer, written by someone named Duke McCoy, entitled "How to Organize and Manage Your Own Religious Cult" (Loompanics, 1980), points out that the modern analytical erosion of human values and fundamental understanding of the universe has created a religious vacuum so great that almost any would-be guru with half a brain can generate a cult following overnight. And we see this everywhere: not merely in the millions of dollars that pour into the coffers of Jerry Falwell and Jimmy Swaggart (or Ollie North!), but — especially over the last two decades — in the attempt to manufacture meaning by copying or reconstructing the rituals of exotic cultures, especially the cultures of the East. I have been to "Tibetan" weddings where no Tibetans were present, talked with self-appointed Earth Mothers who have stuck feathers in their hair and plan to lead the planet into the New Age, and watched perfectly intelligent souls sitting around going gaga over pure drivel, as spouted by various "channelers." We have all seen this sort of thing, and it is hardly a new phenomenon. In an essay published in 1936, Carl Jung wrote:

"One cannot be too cautious in these matters, for what with the imitative urge and a positively morbid avidity to possess themselves of outlandish feathers and deck themselves out in this exotic plumage, far too many people are misled into snatching at such 'magical' ideas and applying them externally, like an ointment. People will do anything, no matter how absurd, in order to avoid facing their own souls. They will practise Indian yoga and all its exercises, observe a strict regimen of diet, learn theosophy by heart, or mechanically repeat mystic texts from the literature of the whole world — all because they cannot get on with themselves and have not the slightest faith that anything useful could ever come out of their own souls."

Morris Berman is a free-lance writer and lecturer living in Seattle. He is the author of The Reenchantment of the World, *(1981), and* Coming to our Senses, *a history of the body, being released by Simon & Schuster in 1989.*

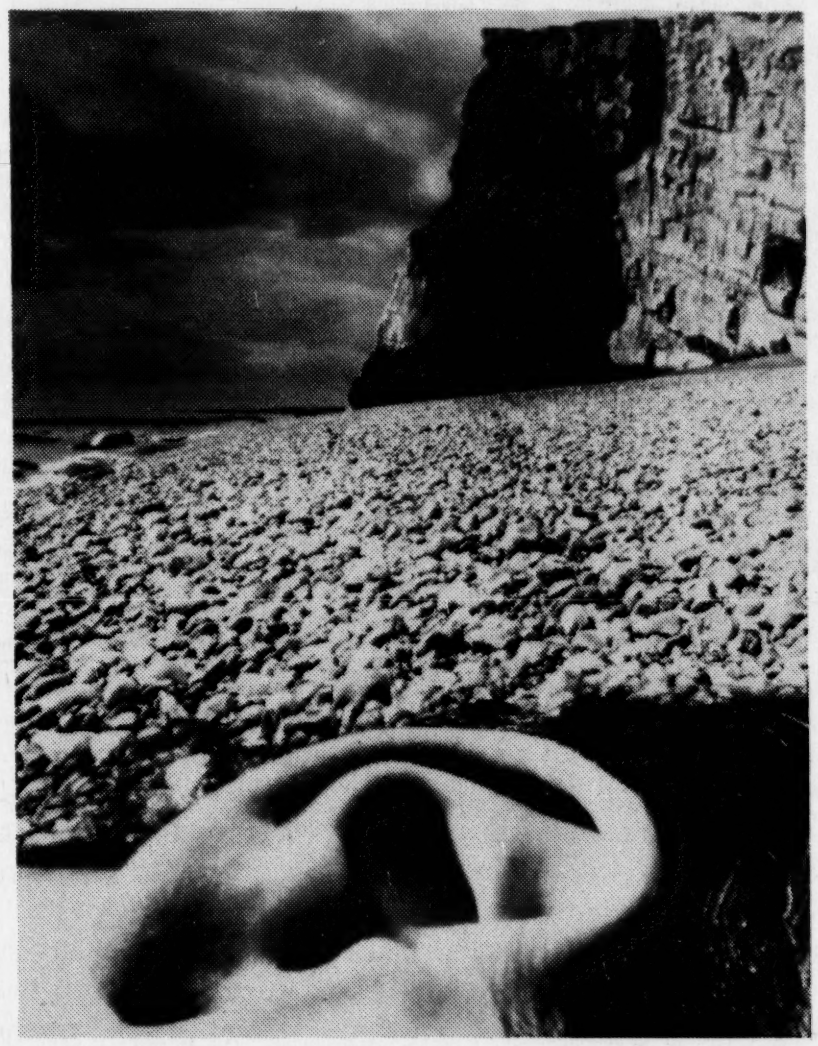
Photographs from *Perspective of Nudes* by Bill Brant

Jung's solution, of course, was not that we should do away with ritual altogether, but rather that it should emerge from the inside rather than the outside. Bar mitzvahs and baptisms no longer cut it — that much is clear — and the attempt to grasp at ritual structures that are external to us is mechanical, formulistic — an ointment, as Jung says — and eventually, it wears off, leaving us basically unchanged, and in the same stuck situation.

The question of where ritual or spiritual fulfillment should come from may be the most crucial question facing Western Protestant society at this time. My own experience is that the "revival of antiquity" is useless, and that meaningful ritual can only emerge in an intuitive and situational way. I do not mean, by that, that it should be constructed by the ego, by reason. As Jung was to argue again and again, the archetypal dimension of life lies much below the conscious level, and any attempt to manufacture a set of rituals in some deliberate fashion is doomed to failure. Intuition for me means allowing something to come *up* from the depths, not going on a

fishing expedition to find it; and the process must be situational — it must be about your own life as it presently exists, not about some initiation formula or goddess rite from another place and another time. Let me offer some examples.

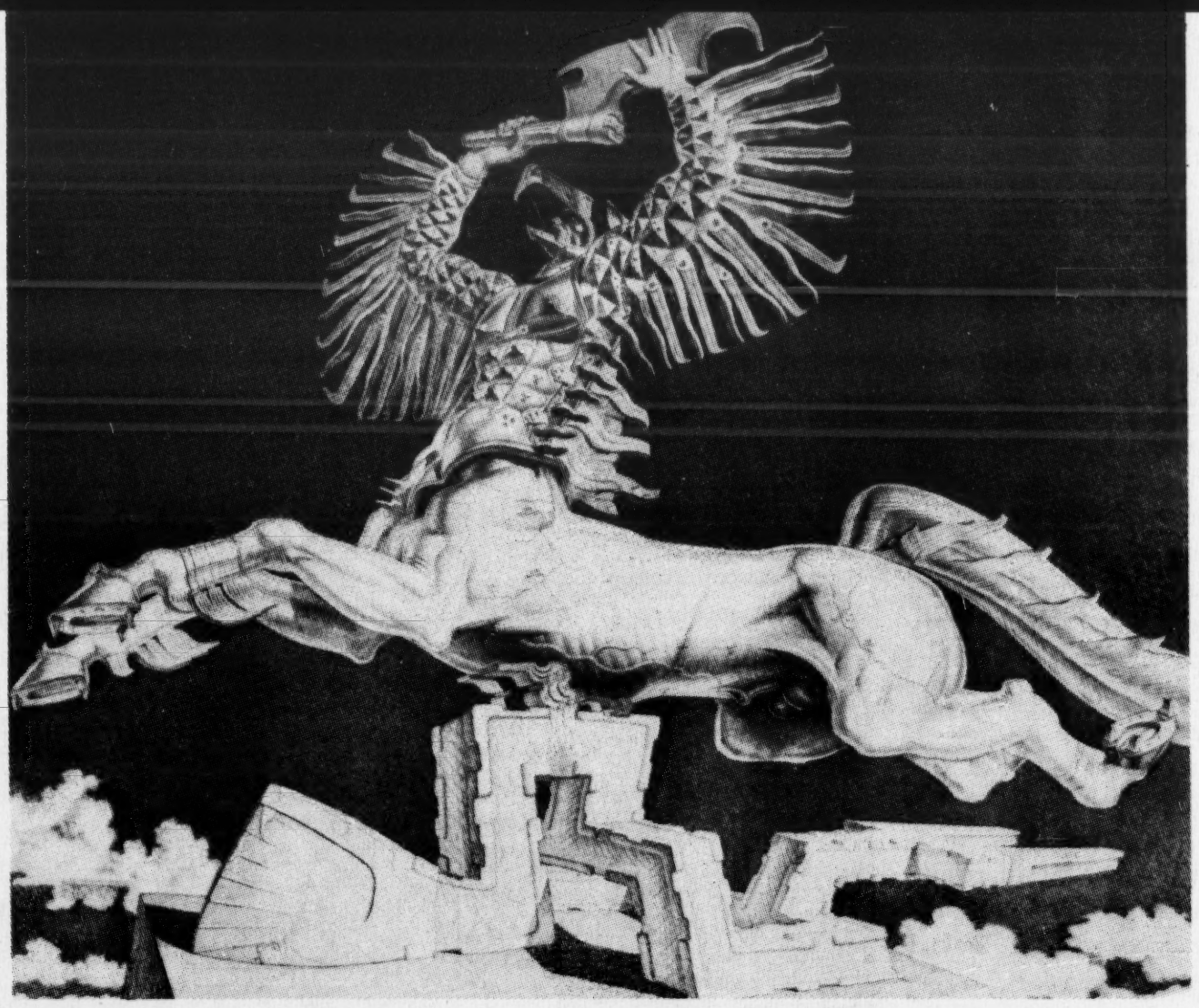
Some time ago, I was working through my fear of women. Most men are afraid of women, to varying degrees; my own fear was probably at the strong end of the spectrum. I was discussing this with a yoga teacher in Montreal, a French Canadian by the name of Philippe. Suddenly he said to me: "Right now, without thinking about it — tell me something you are afraid of." "Spiders," I blurted out. "Right," he said; "this week I want you to find a large, scary spider and take it in the palm of your hand." Two weeks went by, as it turned out, before the opportunity arose. I was doing a weekend massage retreat at a farm in the Eastern Townships of Quebec when I looked down and saw a large, grey-black, fairly muscular spider crawl across the room and stop right in front of me, waiting. I knew what it was saying: "Well, boychik, what'll it be?" And I knew I had to do it, though I felt like throwing up. I stopped massaging my partner's back and stuck my hand out, palm up. The feeling of nausea increased as the spider crawled into my hand, and then began running around my arm. But I stuck it out, and the terror passed. The spider stayed with us for the rest of the day, and was referred to by the other members of the workshop, when speaking to me, as "ton ami." And s/he was, s/he was.



Meaningful rituals don't have to come in large, dramatic packages. On another occasion, dealing with the same fear of women, I took lessons in swimming until I was able to dive into the pool head first. This fear of letting the head go into the water, of symbolically allowing the conscious mind to drown, or submerge, had been with me all my life. Someone (Robert Bly, actually) pointed out to me that this was a fear of the archetypal feminine. So I stood at the side of the pool, stomach churning, and allowed myself to drop into the water, head first, over and over again, until the act of diving was no longer a big deal. This is what I mean by intuitive, situational ritual. My intuition (not my ego, which in fact recoiled at the mere suggestion of these activities) knew that Philippe and Robert were right — they had pegged the problem accurately; the solution to the problem in each case required a response that was specifically tied to a particular context, a particular situation. No robes from the East, no Native American tribal dances were necessary. No drama, no fanfare is required to make ritual a living, transformative reality — just the opposite, in fact.

Our job today, on the archetypal level, is to create new forms or rituals based on content. The anthropologist Victor Turner spoke of the notion of "liminality," a situation in which conscious manipulation of events is suspended so that a deeper truth can arise (*limen*, in Latin and Greek, means "threshold"); what Lawrence Durrell once referred to (in *Clea*) as "the ultimate healing silence." The importation of traditional, fixed forms into our own culture is not about silence or liminality but rather about noise, about trying to "fix it," to "make something happen." Meaningful ritual — that which is based on intuition and situation — can only emerge when the conscious mind is deadlocked, and therefore willing to listen to a deeper truth. Thus, when I speak of creating new forms or rituals, I am not talking about "fashioning" them in some sort of deliberate way; this is why so much of the pursuit of the exotic is off base. You *know* what you need to do, dammit; just *listen*. It may be nothing more complicated than taking a course in karate or selling off half your library, for starters. And the signals will multiply. Once you set the process in motion, the next link in the chain will appear, and then the next, and then the next . . . for archetypal situations are constantly present in our lives. You don't have to go *elsewhere* to find the sacred; it's literally in front of your nose. And following this path, you will eventually, like all of us, die, but with this as the ultimate compensation (you probably won't need compensation): it was *your* life you lived, not someone else's. That is the real gift that meaningful ritual offers, the gift that no one can ever take away from you.

Good luck. ■



THE NEGLECTED GENIUS OF STANISLAV SZUKALSKI

BY JIM WOODRING

LIKE MANY ANOTHER witless child of the American tarmac, I first saw the work of Stanislav Szukalski in issue #1 of R. Crumb's magazine *Weirdo*. I was intrigued but not exactly smitten, and when I found a well-thumbed copy of the Szukalski sampler *Troughful of Pearls* lying perused and abandoned in the back of a Santa Monica magazine rack I bought it on a whim, without any real interest in him or his work. Two days later the glacially flowing substance of his genius had slid into my conventional mind and filled it up, transforming me into a raving Szukalski cheerleader who showed his work to everyone I encountered, including total strangers in public places.

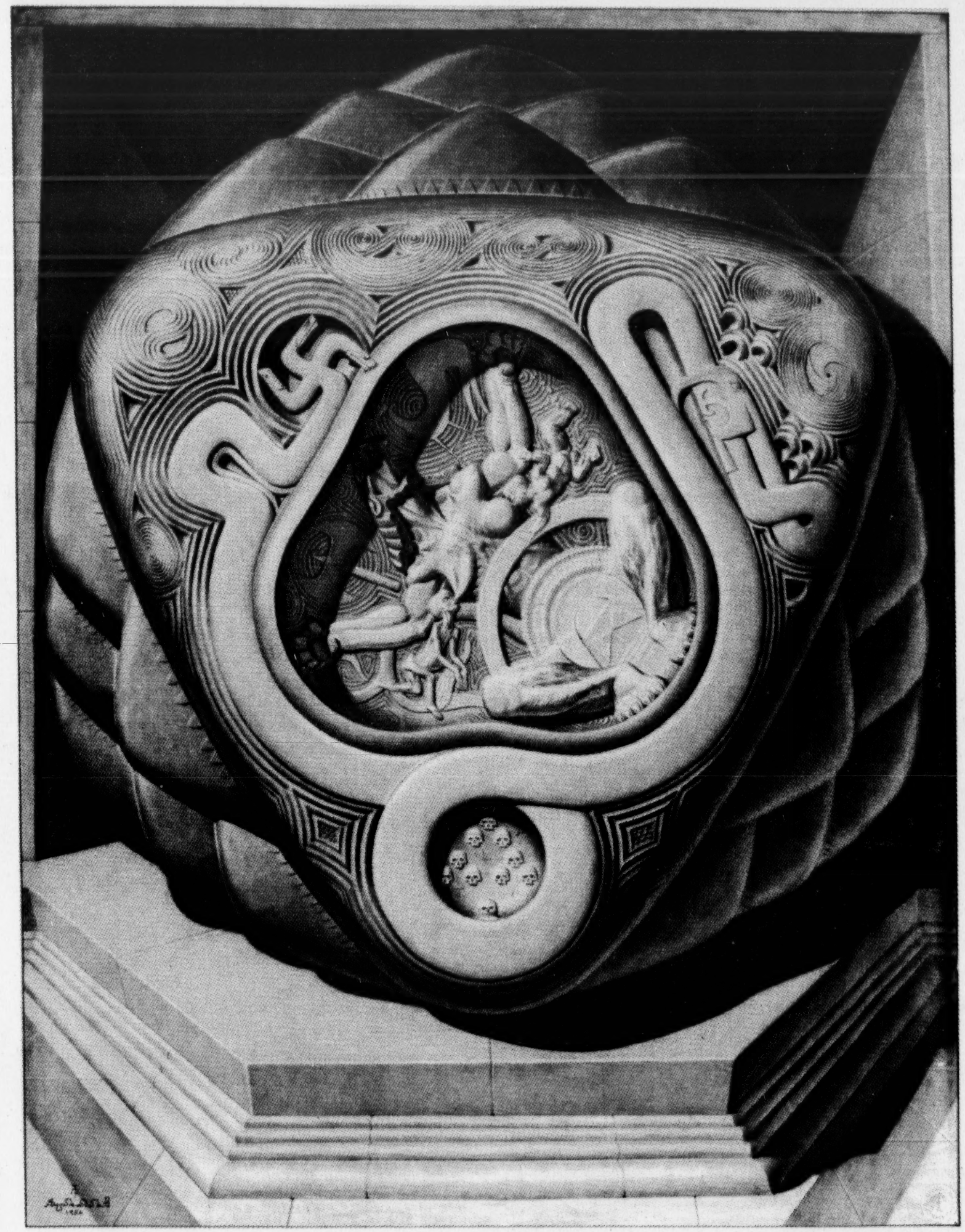
When I found out through pure chance that he was alive and living in Burbank, California, scant miles from my own house, I was agog. I looked up his number in the phone book and called him. When he answered the phone in his deep, nasally mellifluous voice I was so palsied with excitement that I could barely speak, but he was very gracious and when he realised that through my choirboy croaking I was asking if I could visit him he acquiesced warmly.

I had envisioned him living in a comfortable house with a sculpture garden, tended by a doting wife and a small staff of minions and apprentices, dealing nimbly with a steady trickle of art world executors. Instead I found him in a depressingly characterless apartment building, living in two stuffy rooms crowded with statues, personal effects and the clutter of various works-in-progress. His wife had died a few years before and he had no minions, no apprentices, no admiring public. His mainstay and sole major patron was comics art collector and publisher Glenn Bray, who printed *Troughful of Pearls* in 1976 in an attempt to bring Szukalski's work before the eyes of the world. As our meeting rolled on, it became horrifyingly evident to me that Szukalski was living in poverty and almost total obscurity.

Yet plainly he was one of the greatest artists of this or any age, a relentless creative force that produced an incredible number of astonishing works during the course of a career that spanned seventy-five years.

The story of his life is so interesting, and his list of achievements so extensive, that to give a proper ac-

Illustrations and captions are excerpted from Szukalski's* Troughful of Pearls *(see note at end of article). © 1980 Stanislav Szukalski.



[Opposite page] **POLITVARUS (1929).**

This is a new mythic being which combines the names of three soil-tilling nations, Poland, Lithuania, Rus (pron. roosh; the present Ukraine), once united against the monstrous nomadic Predators of the Asian prairies.

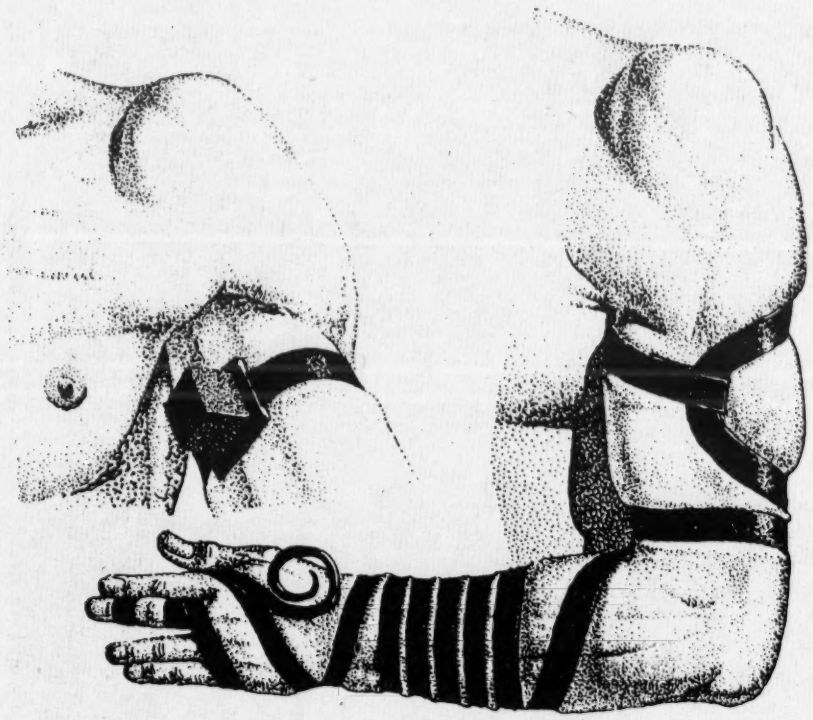
I never use models and this was the first horse I ever drew, also from memory. Most of my compositions are invented on sleepless nights, when my head is crowded with multitudes of notions and projects. Though obliged to die for a few hours each night, I sleep in helpless reluctancy.

[Above] **DELUGE (20th CENTURY) (1954).**

In the center of the seas floats the almost sinking "kufa" (the reed-woven basket-boat of the Mesopotamians) in which sits the Great Lioness of the Pacific, the personification of the Motherland of our mutual ancestors.

The kufa is about to sink and our Civilization is about to perish from the onslaught on Mankind by the PREDATORY species. The churning winds, pictographs for "Diluvial Sinkage", threaten to drown the Great Lioness.

According to the traditions of all great peoples on this earth, the Great Lioness (Easter Island) gave birth to the Dawn God. She was the one whom the Etruscan sculptor, who had never seen a lioness, gave the likeness of a she-wolf. Here she breast-feeds the twin-boys Europe and America. The latter is black and white checker-skinned, thick-lipped and sheep-haired. He is well fed and exuberantly punches her breast to get even more milk, while the other twin is skin and bones and hangs from the European breast, from which air bubbles rise, because it was shot through and emptied by the two arrows of two World Wars.



I had a neighbor, an old Ukrainian Jew who, to assist me in my research, posed for me with his Twilum on his bare left arm, which is the ancient ceremonial observed in prayer.

The name Twilum derives from the Protong phrase "Twi L Um", meaning "Your F(lood) Memory". The narrow strap and the little box that is placed in the armpit are made of goat skin, usually lacquered black. Its hand-wrapped end tapers off like the Serpent tail, for indeed, the whole contraption emulates that pictograph of Flood. The reason why the little box is placed in the armpit is that it represents the Serpent's head: it is held so as to stifle the life out of it, while the tail squirms, twisting itself around the arm of the faithful descendant of Noah who survived the Great Flood. For that reason the device is still called Twilum.

Little La Guardia, the manipulative mayor of New York who was selling locomotives to Tito of Yugoslavia, ostensibly taking away the spiritual control from anti-Nazi, anti-Communist Michailovich, the patriot, assisting the Communists in taking over that part of Europe.

Here you have the "little flower", as he preferred to be called. The tiny hands indicate the dwarfishness of this Great Patron of Communism, though he was an American flag waver.

count of them would take volumes. He was born in 1896, achieved recognition as an artist of rare promise while in his teens, endured two decades of sickness, hunger and neglect, and had a museum devoted exclusively to his works at forty. He produced hundreds of elaborate and profoundly expressive sculptures and dozens of thousands of drawings; he discovered what he believed was the prototypical language of ancient humanity; he formulated an original anthropological science and substantiated it with forty-two large volumes of drawings and writings; he designed monuments and buildings — and all this he did with a mastery of draughtsmanship and an originality of design that never fails to astonish whoever sees it.

Ben Hecht in his 1954 autobiography *A Child of the Century* describes the twenty-year-old Szukalski he met in 1914 as starving, muscular, aristocratic and smoldering with disdain for lesser beings than himself. When an influential art critic favored Szukalski's Chicago art studio with his presence and appraisingly touched a statue with the tip of his cane. Szukalski seized the stick, broke it, and roughly threw it and his potential benefactor out into the street.

In fact he categorically loathed all art critics and invariably repaid their admiration with profound contempt; the result was a predictable dearth of career. Szukalski didn't mind. He continued to toil like a madman, producing one amazing work after another, confident that his artistic and intellectual supremacy would triumph over the cultural gag order that had been imposed on him.

In 1934 he was vindicated. The government of his native Poland declared him "The Greatest Living Artist" and brought him and all his works to Warsaw, where the Szukalski National Museum was built as a monument to his glory. There could be no greater honor for Szukalski, who considered himself to be Poland in miniature, and whose heart yearned ceaselessly for his homeland and his people all the time he was in America.

During WWII the Luftwaffe demolished the museum during its first bombing raid on Warsaw. Szukalski returned to the United States, there to spend the rest of his life in varying degrees of comfort until his death. His reign as "The Greatest Living Artist" had lasted only a few years.

HE WORKED with fierce and single-minded devotion, indifferent to matters of personal comfort or nutrition. When a stroke felled him on June 17, 1987, at the age of ninety-one, Szukalski was still tremendously vital. At an age where the overwhelming majority of Americans are either dead or ruined, Szukalski was a veritable sprite. He possessed an uncommon clarity of mind which

age did nothing to obscure. He lived contentedly alone, walked considerable distances every day for exercise, and managed his own affairs. He could subsist on a diet of cornflakes and water, and yet maintain such muscular strength that his arm felt like a piece of steel drainpipe.

Szukalski possessed a captivating Old World demeanor, and he spoke with a structured eloquence that enabled him to put forth his complicated ideas with rich conciseness. He moved among the uncultured slovens of Burbank like a nobleman among savages, anachronistically courtly and polite. He saluted and bowed to men; he kissed the hands of women. A fire burned in his eye at all times, though his mood changed constantly.

He considered himself to be without antecedent or influences. Any suggestion that his work contained, for example, elements of Mayan art was soundly quashed. It is true that he had looked at (and meticulously copied) a fantastically huge amount of Pre-Columbian art and other ancient ethnic images in the course of compiling his work on his science of "Zermatism" (in which he traced the development of mankind's emergence from the devastation of the Great Flood), but he vehemently denied that his work contained any received ideas or motifs. He was serious about maintaining his claim to a pristine artistic bastardy; he intended to call his autobiography *Self-Born*.

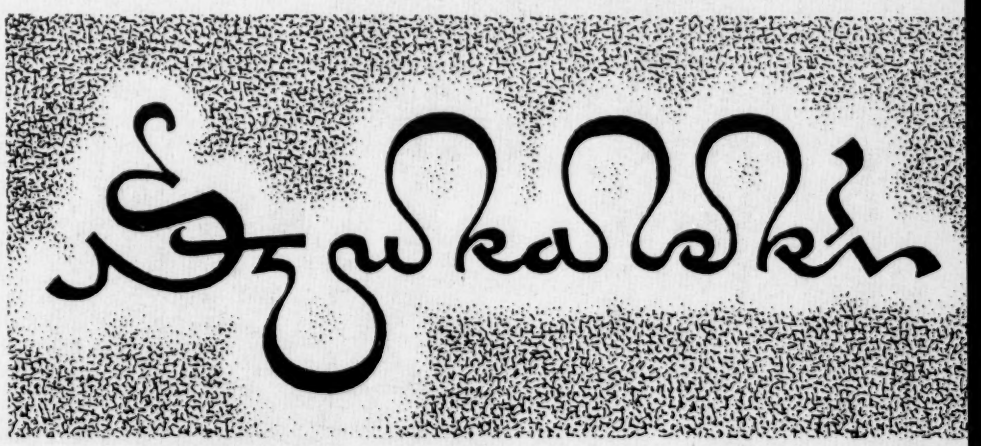
During my first meeting with him he had me continually off-balance. "What is your nationality?" he asked me moments after we had settled down on chairs in the dank aquarium of his living room.

"Dutch, mostly," I said.

"The Dutch are the world's leading proponents and producers of child pornography," he replied.

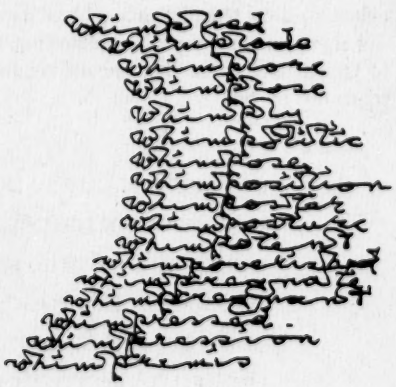
Lamely I tried to explain that I wasn't that sort

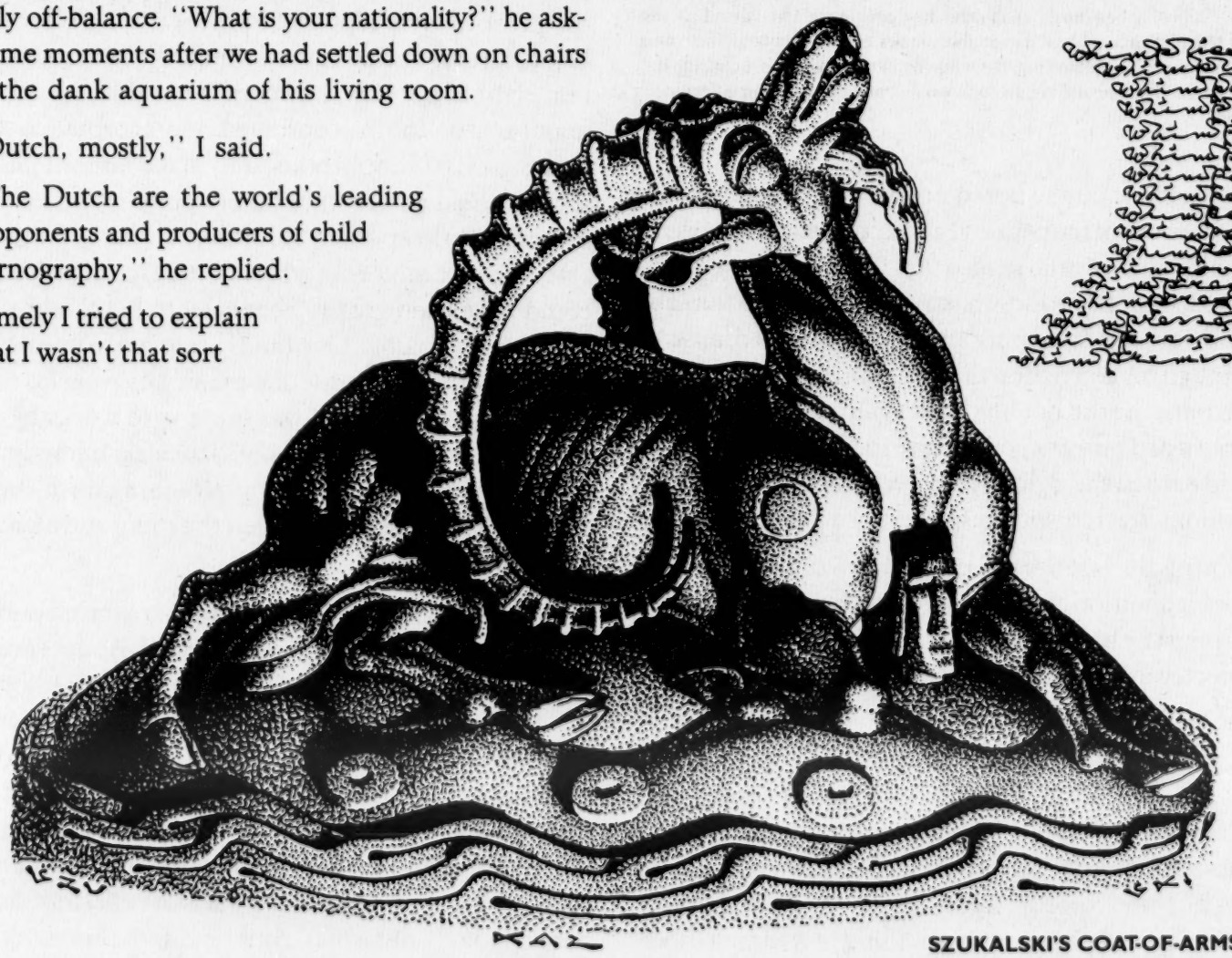
According to my reasoning, there are two different types of Deluges, but because of their astronomic timing, our human wink-of-an-eye existence does but remember one.



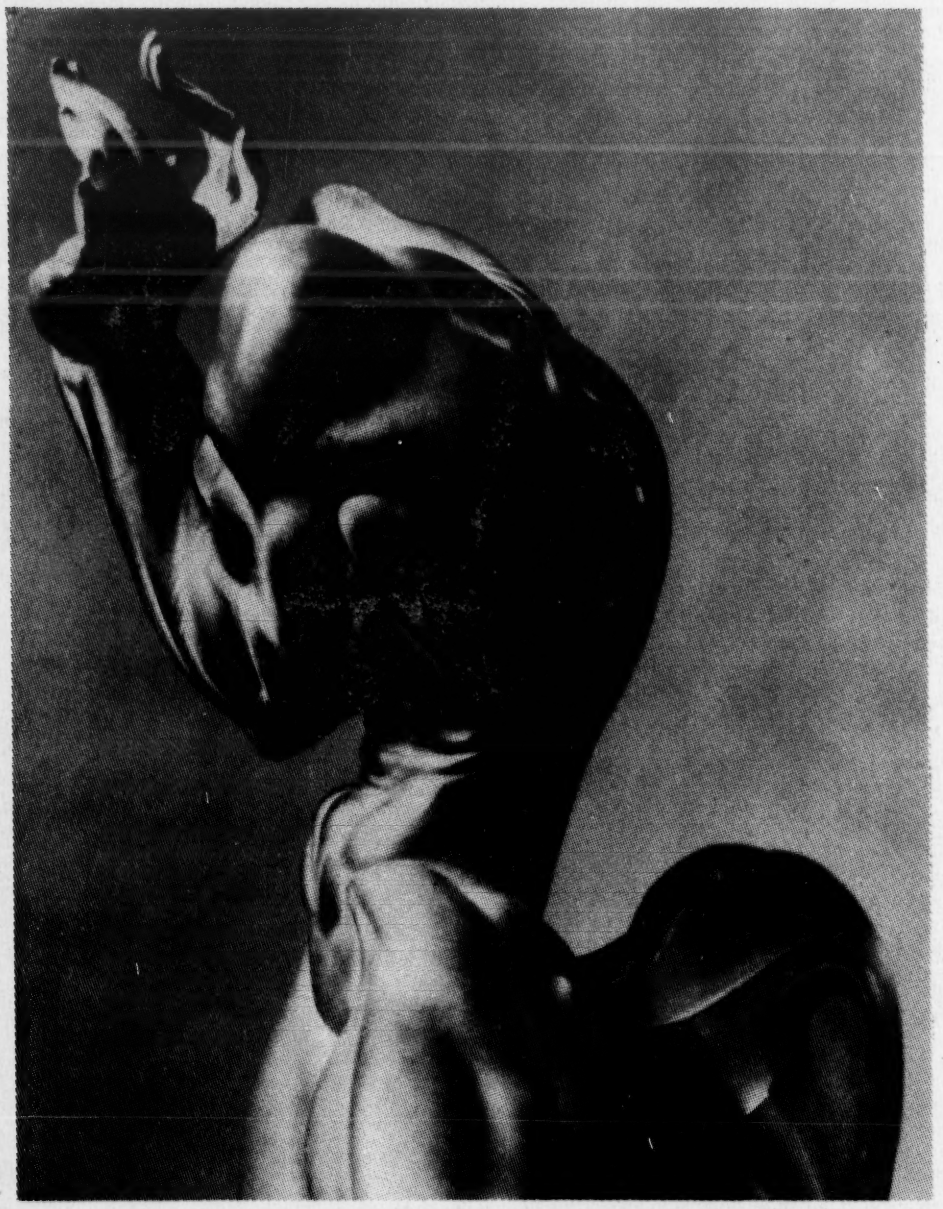
***[Above]* Szukalski's autograph.**

***[Below right]* Szukalski's authorship of the method of multiplying words by combining their meanings.**





SZUKALSKI'S COAT-OF-ARMS.



ECHO (1923).

The figure of "Echo" is headless, as it does not originate the sound of the echo. To hide the absence of her head, she places her hands together and deceives her listeners by distorting the sounds they make, re-echoing it to them. She is resting her inflamed foot on a tree, being tired of running from hill to hill.

of a pervert but he bored deeper and deeper into the framework of my personal and ancestral history, determined to make me realise that I belonged to a doomed society of ne'er-do-wells. And yet we parted amiably and remained friendly until his death, because although his conviction that I was an inferior being was genuine, he did not hold that against me. For my part I regarded him as a genius, an extraordinary man who had earned the right to have even his most outlandish notions treated with respect.

During the last decades of his life Szukalski yearned for recognition and exposure, for the admiration and support he had known so briefly and so belatedly and which was now utterly denied him. He saw grafitti artists elevated to the status of exalted masters while he remained isolated from fame as if by an iron wall.

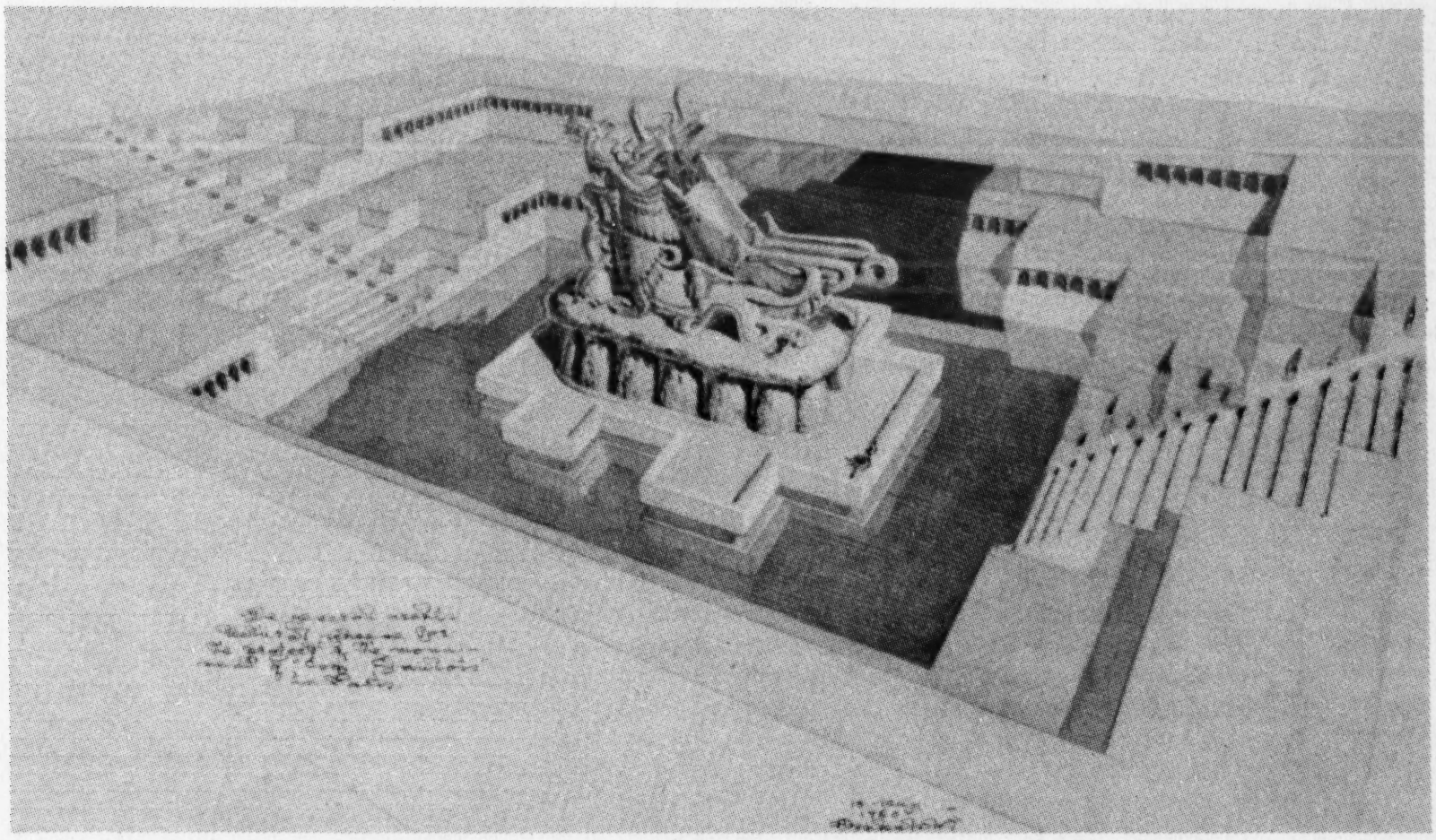
Glenn Bray and Szukalski's other friends took *Troughful of Pearls* around to the museums in and around Los Angeles with the expectation of attaining for him the exposure he so manifestly deserved. Museum officials were never anything less than flabbergasted by the quantity and quality of the works. Curators who condescendingly granted five minutes of their time to the book-carriers would end up spending an hour or more poring over the material, gaping in disbelief and trying to comprehend the fact that Szukalski was almost completely unknown.

But nothing ever came of these attempts! The curators ultimately handed back the books with polite thanks and said that they did not care to bring the works of Szukalski into their galleries. Why? Because he was too political, too opinionated, too naked, too crazy.

That word "crazy" came up frequently during these negotiations and it wasn't intended as a compliment. Szukalski's philosophical edifice was preposterous. Among his most strongly held (and extensively documented) theories was the notion that a race of malevolent Yeti have been interbreeding with humans since time out of mind, and that the hybrid offspring are bringing about the end of civilization. As proof of this he pointed to the Russians. He also believed that heat causes gravity and that all modern languages derive from Polish. He harbored sentiments that seem fascist and racist, and which were based upon his most patently absurd theories. He was almost certainly wrong about a lot of things; but as anyone who spent any time with him can tell you, he wasn't crazy.

Szukalski said that his work was rejected because it was so powerfully informed by the tremendous passion he felt for his subjects. He said that average Americans didn't love or hate anything strongly, as he did, and that they (that is, we) could not appreciate the great themes captured in the writhing sinews of his sculptures and pictures. I think he was to some extent right about this; however, it is evident that the major reason for his continued non-acceptance was that Szukalski simply refused to make himself palatable. He held a lot of unpopular opinions and he saw no reason to keep them to himself. In fact, it was exactly at those moments when a little tactful reticence could have been greatly beneficial to his career that he was most voluble. One time I arranged to bring him to meet with the curator of a major Los Angeles museum. The man's office was hung with works by Picasso, Matisse and Kandinsky; Szukalski immediately launched into a sneering tirade against these masters. The curator simply left the room and a secretary showed us out.

A few years back it was arranged for him to give a public address and slide show at a rented hall. About seventy people showed up. Szukalski was ecstatic. He loved to hold forth and he felt affectionate toward his every audience. He mounted the podium and within four minutes had alienated or offended everyone in the place. In his opening remarks he praised Reagan to the heavens and dumped all over Picasso (he pronounced it "Pick-ass-oh"); he denigrated art collectors, Russians, FDR, California, America and professional



LE COQ GAULOIS (The Rooster of Gaul) (1960).

[As an] anthropologist who has devised the new science of pictography, I have learned why the rooster became the totemic coat of arms of the people of Gaul. The rooster is the first of the domesticated animals to awake in the farmyard. He is the one who, on perceiving the glow of the birth of Dawn below the horizon, rejoices for Man by crowing repeatedly, thus awakening the sleeping Worshippers of the Dawn God.

There are three Serpents — originally pictographs of Flood, but here associated with utmost Evil and Calamity — about to attack Marianne, a peasant girl who in popular imagery personifies France. She is breathless and about to faint. But suddenly the Anthropomorphic Rooster, the awakener of the nation, throws himself between the encroaching Evil Calamities and Marianne, thus saving her life and altering the course of history.

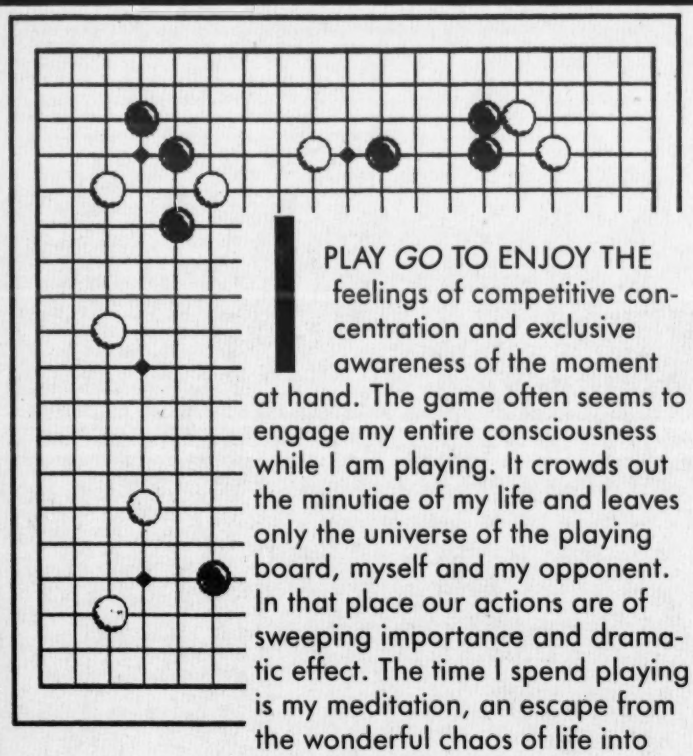
sports, and wound up with a stern denunciation of "homos"! Audience members glowered and muttered harsh replies into their lapels but when the lecture was over he received a thunderous and prolonged ovation. They had come to realize that Szukalski was not a man to be judged by conventional criteria; they applauded him as an outstanding member of their species.

During his last years Szukalski's major project was a gigantic and complex structure that he wished the U.S. to give to France to reciprocate for the Statue of Liberty. He called it the Rooster of Gaul and he had it worked out down to the tiniest detail, including an ingenious plan for paying for it. I remember when he first showed me the model sculpture he had done for the centerpiece of the thing. "Look," he said, indicating a weary and anguished woman being ravaged by a roiling mass of stylized and inscribed tentacles. "That is the woman who symbolizes France. She is being crushed and ensnared by all the '-isms' of modern Europe. There is Fascism, and there is Communism . . . and there is Ventriloquism."

The idiosyncratic particulars of his works notwithstanding, Szukalski's message is one of faith in oneself. His life was spent in the service of his vision of nobility. He was a man who would not compromise on matters of principle. He was prepared to starve to death rather than accept a scrap of bread under false pretenses. His art is animated by palpable forces of scruple and opinion that are seldom seen in works of the heart, and the messages are so powerfully put forth that lesser minds than his must frequently decline to try to deal with them. He could abide any opinions contrary to his own if only they were strongly held; the thing he detested above all was weakness. And justly so, as it happens, for it turned out that weakness was the very thing that defeated him — the weakness of cultural arbiters who would not dare to buck the tide and be responsible for his becoming known. ■

GLENN BRAY HAS HAD SOME OF SZUKALSKI'S smaller sculptures and medallions cast in bronze in small editions. Interested parties may write to him at P. O. Box 4482, Sylmar, California 91342. *Troughful of Pearls* and *Inner Portraits*, a collection of Szukalski portraits and commentary published by Bray in 1982, are out of print and unfortunately are no longer available from him. —J.W.

Jim Woodring publishes his own haunting artwork in JIM, *available from him at P. O. Box 10075, Glendale, CA 91209. Jim illustrated the "memes" article in the Winter '87 issue* (WER #57, *p. 50).* *—Kevin Kelly*



GO

BY BRAD KLEIN

I PLAY *GO* TO ENJOY THE feelings of competitive concentration and exclusive awareness of the moment at hand. The game often seems to engage my entire consciousness while I am playing. It crowds out the minutiae of my life and leaves only the universe of the playing board, myself and my opponent. In that place our actions are of sweeping importance and dramatic effect. The time I spend playing is my meditation, an escape from the wonderful chaos of life into the purity of the game.

Go is, perhaps, the greatest board game ever devised. It is based on rules so simple that it seems as if it was discovered instead of invented, yet is unsurpassed in its depth and complexity. Go has been played for many centuries in China, Korea, and Japan, and is currently enjoyed by millions of players throughout the world. It is a subtly beautiful game, played ideally with "stones" made of slate and white clam shell upon a thick wooden board.

It is often said that Go can be learned in an afternoon, but studied for a lifetime. This may be a bit misleading. Although the rules are very simple, it does take significant effort to become comfortable playing the game. It seems that the players most likely to make it through that threshold are those with the faith to just get in there and play those first twenty games undaunted by their usually considerable confusion.

Some confusion is inherent in learning to play Go. I remember that soon after learning to play backgammon or chess I had no problem playing complete games. The object of the game, and some crude approach to it, were clear. However, with Go I frequently could not tell in my early games if the game was over and who had won. Perhaps this was because Go is a game of coexistence with your opponent. Victory is never total and excessively aggressive play has a way of ending in failure. These problems pass quickly if you have an experienced opponent handy.

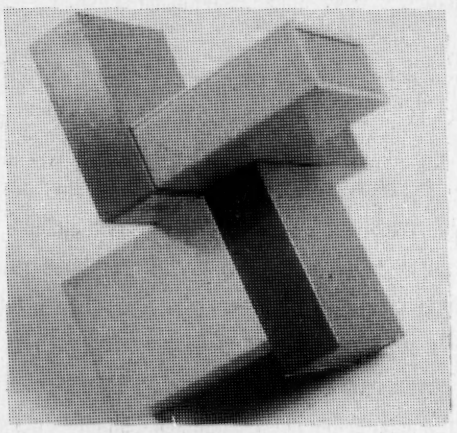
To learn to play, find the nearest Go club (there are well over 100 in the U.S. and Canada) by writing to the American Go Association. Buy an introductory book, and perhaps a board and stones from an Oriental bookstore or from Ishi Press International. Ask your Oriental friends and neighbors if they play. It may be helpful to know that "Go" is a Japanese word. The game is known as "Baduk" to Koreans and "Wei Chi" to Chinese and Taiwanese.

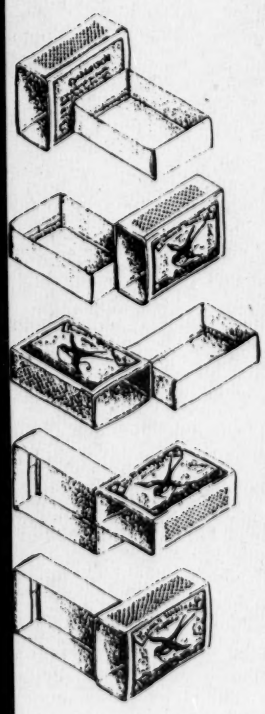
American Go Association: P. O. Box 397, Old Chelsea Station, New York, NY 10013.

Ishi Press International: 1400 North Shoreline Blvd./Building A-7, Mountain View, CA 94043; 415/964-7294.
Ishi Press sells books in English, and a wide variety of boards and stones. A good book to begin with: An Introduction to Go, *by James Davies and Richard Bozulich ($4.95 postpaid).* ■

Puzzles Old & New

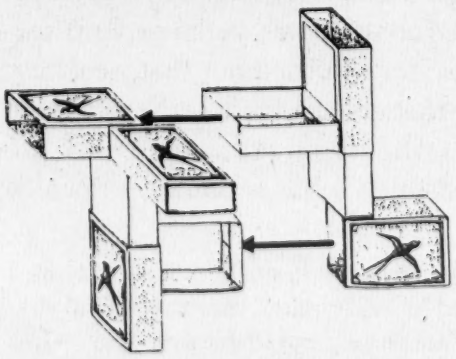
Mechanical puzzles, the maddening kind,
Twisted wire that twists your mind,
Sliding blocks you trade and swivel,
Knots to make the clever snivel,
Chinese rings and Rubik's cubies,
Maidens with ball-bearing boobies,
Ancient secrets from the past,
Revealed for you to make at last.
—Ogden Baldwin





Van Deventer's Matchboxes. The object of this puzzle is as simple as it is difficult: *close all the boxes.*

The sample shown here is a beauty, made by the inventor from very thin wood and attractively painted.



Puzzles Old & New
(How to Make and Solve Them)
Jerry Slocum and Jack Botermans
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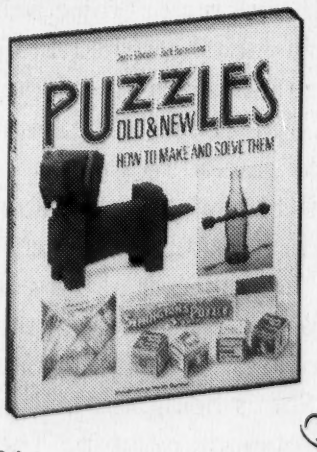
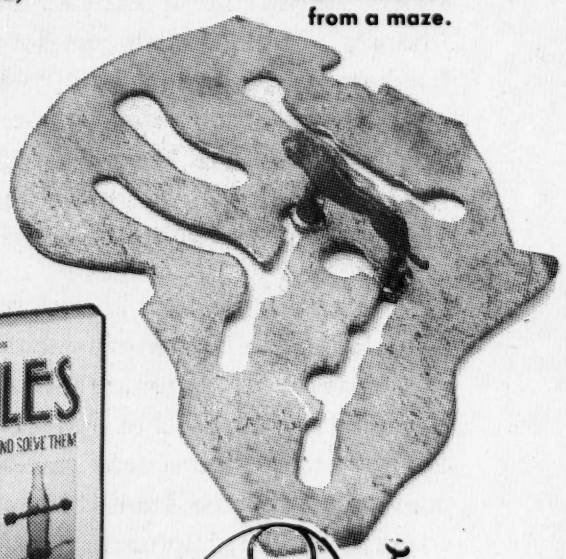
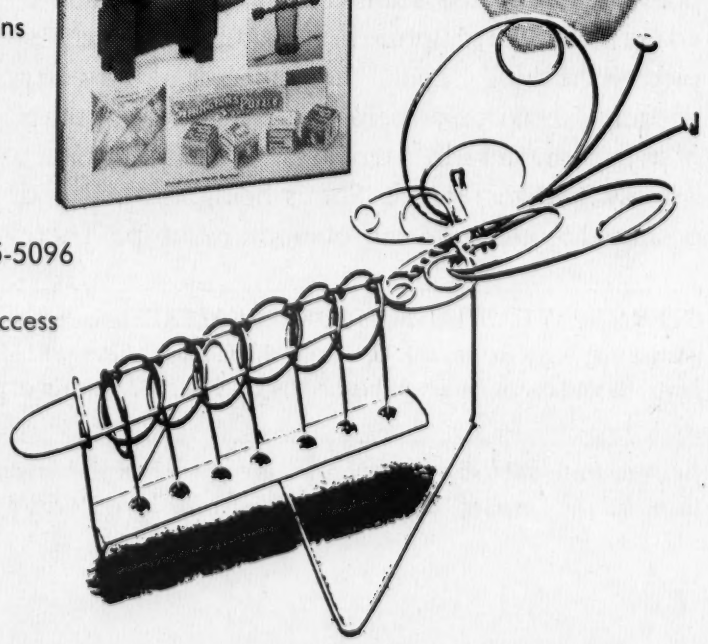


The Africa puzzle, made of tin, features a lion to be extricated from a maze.

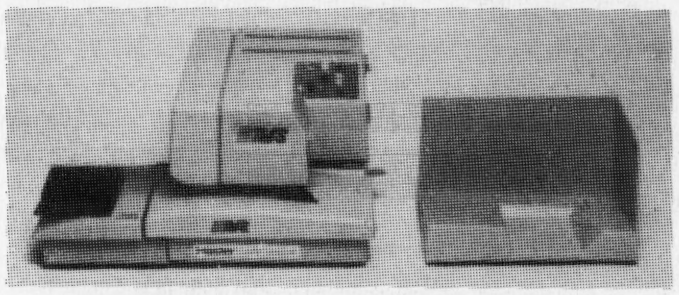




At first glance this may strike you as a beautiful piece of jewelry, but it is in fact a homemade, highly decorative Chinese Rings puzzle, made of wire by Rick Irby of Irvine, California.

What to Buy for Business

*This is a specialized magazine somewhat like **Consumer Reports** for buyers of business office equipment and supplies. Most any size business that purchases office equipment will get information here that can save enough to more than offset the rather high cost of the publication (**What to Buy** accepts no advertising). Each issue concentrates on one type of equipment — business phones, postage meters, FAX machines, copiers, etc. The magazine offers hard-hitting advice and opinions which don't pull any punches when it comes to pointing out equipment problems and models to avoid. The information is usually very detailed with comparative product prices, features, and evaluations. Each issue shows subscriber survey results on product reliability and and feedback. With this*



The IMS/Hasler 101 - a 'best buy' for low-volume use provided you opt for the 'Plan 1' rental scheme.

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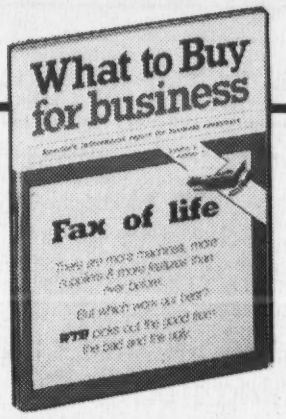

information you see what subscribers' experiences have been with each manufacturer's equipment so you don't have to rely only on the magazine's writers.

—Milton Sandy, Jr.

Best Buys in Postage Meters

IMS/Hasler 101 - $425 or $13.50–$17.75 per month
Very basic system – it can't seal or dispense tapes – but for low-volume applications it's very competitively priced, provided you get it on a rental basis.

IMS/Hasler 202 Series - $895
Low-end base which offers a reasonable level of performance and an excellent reliability record.

IMS/Hasler 204AS Series - $3,295
Automatic feeder model which is capable of speeds of up to 170 envelopes per minute. In addition, the available range of mechanical meters is very competitively priced.

Pitney Bowes 6260 Series - $1,695
Very flexible series of bases which can be linked to a wide range of meters, some of which offer Pitney's unique 'Postage by Phone' system. All are excellent choices in the low to mid-volume bracket.

Harvard Business Review

*Don't be daunted by the title. **HBR** is quite easy to read and understand, with some of the best thinkers on management and business strategy; many of the classic texts on management began as **HBR** articles.*

The presentation is designed more for the busy executive than for the academic, which may account for its accessible style. Book reviews from the point of view of people whose job is running a company provide a quick look at what's hot in the management marketplace.

*It's not just for the mega-corporations, either; topics range from small business, entrepreneurial spirit, venture capital and business plans, to pricing and marketing strategies, liability, employee ownership, sex discrimination, and how to structure a board of directors. Information technology and computers, international competitiveness and trade policies, Japanese education and the importance of quality control — **HBR** will keep you up to date on some of the most important issues in business.*

Exceptionally valuable are the frequent case studies featuring analysis and commentary from businesspeople: real-world experience brought to bear on real-world problems.

*Most importantly, **HBR** never wastes my time.*

—Matthew McClure

•

From The People Who Brought You Voodoo Economics
Will many, small, entrepreneurial companies do more for U.S. competitiveness than a few, large, integrated ones? George Gilder has argued the affirmative: in HBR's March-April issue, he attacked MIT's Charles Ferguson and other supporters of industrial consortia, claiming that advanced computer technology — engendering the "law of the microcosm" — lowers barriers to market entry and promises to make talk of a national industrial policy obsolete.

Charles Ferguson now joins the debate, refuting Gilder's claims in a no-holds-barred analysis of the U.S. semiconductor industry. Ferguson shows that U.S. companies lose out, not to nimble, small companies but to huge, protected Japanese complexes that are embedded in stable, concentrated, coordinated alliances.

As for Gilder's law of the microcosm, Ferguson is dubious

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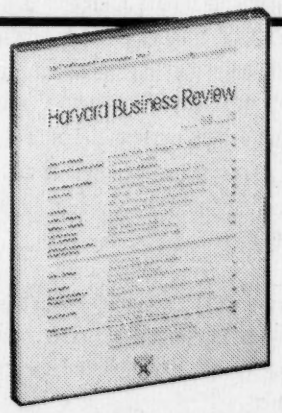


— voodoo competitive doctrine he calls it. Personal computing, he concedes, lowers the minimum initial costs of obtaining systems technology. But computers are becoming cheaper and more powerful because the semiconductors and software they use have become mass-market products. R&D costs in the companies producing them are enormous, as are startup costs. Big companies are racing to develop dominant system protocols and huge communications networks.

Big integrated corporations, Ferguson insists, are the only institutions likely to protect and develop intellectual property and invest in the training and career development of key people. Given crucial changes in the tax system, big companies are the only ones that can operate with reasonably long-term horizons.

The witch doctors have spoken, Ferguson concludes; the patient urgently needs real medicine.

"You've got to relax, Simpkins — go with the cash flow!"

BACKSCATTER;

echoes from readers back to
Whole Earth Review
(27 Gate Five Road,
Sausalito, CA 94965)

The other side of Indian fishing treaties

One of the most wonderful things about *WER* is its iconoclasm. "Toxic Environmentalists" (*WER* #45) was a great issue. We need an occasional healthy dose of mutual self-examination. One of the sacred cows which no one in whatever we can call the *WER* readership (left-leaning; ecologist or simply all-right-thinking-people-everywhere) is willing to criticize is the issue of native rights. It is easy for urban and semi (dare I say sub-?) urban liberal people; particularly in the southern U.S.A. to say "do the right thing." You cannot understand the importance of this issue to rural and particulary maritime British Columbians. Up here (and more so in Washington) Boldt's name is a curse. (Judge Boldt decided in favor of Indians. See *WER* #58, p. 50.)

While I am glad to read that this infamous decision may be of some use in the fight against environmental degradation, it's a case of an ill wind blowing someone a bit of good. Boldt's first and most important effect was the destruction of the non-native commercial fishing industry in Washington state. Nor did it do the good to native communities that was intended.

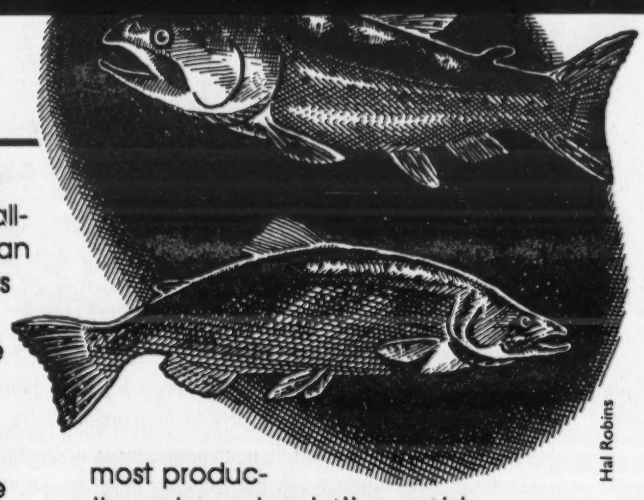
I quote from an article in *The Cultural Survival Quarterly* entitled "The Unintended Consequences of the Boldt Decision."
"Rather than returning fish to traditional Indian river and inshore fisheries, the Boldt Decision appears to be encouraging the creation of a wealthy class of offshore, capital-intensive, treaty-tribe fishermen who are intercepting much of the resource before it reaches the traditional estuary and river fisheries of the tribes. . . In 1982 the 30 purse-seine vessel owners took $6.6 million of salmon, almost one-third of total treaty harvest value. One tribe alone took 40 percent of the total value of 20 treaty tribes. . . Even within tribes who possess large capital-intensive fleets, conflict emerges as small-scale skiff and set-net fisherman charge that tribal purse-seiners leave them few fish. . . Non-treaty fishermen had, from the beginning of the litigation, charged that the moral arguments used to justify a private treaty share in the fishery were simply smokescreens behind which certain Indian individuals would become extemely wealthy. Now, following the undeniable destruction of their fishery, their suspicions appear to be confirmed."

Of about 30 articles in this very liberal anthropology journal, this was the only one not solidly pro-aboriginal fisheries.

I am a commercial fisherman in British Columbia. I have been one all my life, my father before me and, I hope, my children after. Fishing is hard and dangerous work. In 20 years we lost many good friends to the sea. I love it all the same. There is nothing I would rather do. It is not merely my livelihood, how I make a living; not just a job. It is my life.

Nothing on God's earth compares to the moment when it's just breaking day and the incoming tide makes the river stop. The smell of the land and the splash of a salmon. Or steering at night, quiet talk in the dark wheelhouse with shipmates, mostly life-long friends. The glow of cigarettes and the smell of bad coffee. And the freedom to work when I want and with whom. These things and much more make fishing my ideal life.

Right now, tho, it is a life under a very serious threat. Native land claims cover 103 percent of the land mass of B.C. (some overlap). Also claimed is pretty much everything that swims, right out to 200 miles off. The Sparrow case, due to be heard in Canada's Supreme Court, Nov. 7, '88, asks that the Musqueam Indian Band be granted the right to catch as much Fraser River salmon as they like, for food, ceremonial and commercial purposes. This right to come before all other users of the resource. In essence, they are asking for total control of the most productive salmon river in the world.


Hal Robins

It is currently legal for any status Indian to take all the salmon s/he wants for food or ceremonial purposes. Abuses are ubiquitous. The Musqueam band apparently eats (at least catches) 700 salmon per man, woman and child per year in their food fishery only. Many of the band also own commercially licensed boats.

In the hierarchy of user priorities for salmon, conservation comes first (i.e. enough fish are let go by for optimum spawning) then comes the native food fishery. All other user groups come after. This year, the Indian food fishery allocation is 500,000 sockeye or 40 percent of the total Fraser river catch. This has traditionally been around 8-12 percent but has been raised because of lower-court decisions in the Sparrow case.

Indians make up 2 percent of B.C. population. They are around 30 percent of the fishing fleet. And shooting for 100 percent.

I have lived and fished with Indian people all my life. I have good friends, even relatives by marriage among them. Few people and no groups are without some amount of racism, but we have always gotten along. Not any more. The greed of some Indian leaders and insensitivity of central gov't bureaucrats is setting us up for some major conflicts and souring a good working relationship. Used to be, if I was walking along the dock and saw someone with a nice new boat I'd stop and chat and compliment the owner. Now if the owner's Indian I scowl, wonder what gov't agency bought it for him and keep walking.

I have a very good friend who married an Indian woman. That makes his kids, tho half-white, legally Indian. It looks more and

more like my kids are going to be on the beach while his are out fishing. We're not as good friends as we used to be.

I don't quite know how to end this but I guess what I mainly want to say is no matter how good and morally right something seems like in the abstract, it's always more complicated with real people, down on the ground. And keep bashing those sacred cows.

Yours etc.
Lars Iverson
Vancouver, B.C.
Canada

Checkmate(s)

I'm writing in response to the article "The Checkmate Proposal" (*WER* #59, p.112) I believe that Ted Nelson's idea has a great deal of potential. In fact, as a member of a closed polygamous group, I am happy to say that we are implementing a plan similar to his for our own protection and peace of mind — we also use condoms.

Becoming a member of our group requires three steps — here we are dealing solely with the physical issue — the first being passing the HIV antibodies test. We then ask that a prospective member be either celibate or monogamous for three months, at which time he or she would take another HIV antibodies test. On receiving a psssing result this person would become a fully participating member of our group.

We ask for retesting after three months to ascertain that our prospective member hasn't contracted the virus 5 days or 2 months prior to the first test. The health agency in my part of New England says that the HIV antibodies test is 95 percent accurate three months after exposure and 99 percent accurate 6 months later. We feel that if a person is willing to wait three months and to have two tests that we can trust them and the test results.

Here is the key word — trust. The main hitch to Ted Nelson's plan being successful (and ours, too) is that today people do not trust one another. People are paranoid and often disbelieve everything. The flip side of this is that there are all too many people enjoying sex with many unknown partners, putting themselves and their partners at risk.

We deal with this geographically — our group is located in a rural area of New England and our area has reported very few cases of AIDS or AIDS-related illnesses. Ted Nelson's plan enables everyone to participate irregardless of their status — the code numbers and telephone number, exchanged only between those contemplating intimacies, offers a basis for trust.

One area Nelson does not speak of is the need to educate and counsel teenagers. As AIDS moves more and more firmly into the heterosexual mainstream I am convinced that teens are a high risk group unto themselves, partly because teens are so often certain of their immortality, thinking only of today, not the possible consequences five years ahead. When I became sexually active, at age 15, the AIDS virus was still in the lab (a theory postulated by radical animal rights group) or in Africa, Asia, Antarctica, or outer space. I experimented in as many ways as I wanted. Were I to duplicate my sexual behavior of 15 years ago today I'm sure that I would be considered a person at risk.

Were we, on a grassroots level, to implement Ted Nelson's plan, offering pendants to teens coupled with counseling and latex condoms, I think we might begin to protect our future — because, as Ted Nelson says, "It is in everyone's vital interest that even the most disdained — however promiscuous, and perpetrating whatever practices — not be infected."

There has been a lot of discussion in our group; we read everything we can, we advocate testing on a 'need-to-know' basis and I think that we should give Ted's plan a try. What have we got to lose?

Polygamous
in Vermont

Holyland of extremes

In Jay Kinney's article "The Disharmonic Convergence" (*WER* #59, p. 44) he states that both the far left and the far right are anti-zionist. This is probably true in most countries but ironically the only county on earth where these two radically opposing groups share in government representation and national debate is in Israel itself. Remember this nation was greatly built by the kibutz, a collective by choice rather than state mandate, which exhibits some of the best qualities both the left and right espouse. Circumstance may make Israel the most likely candidate for this convergence of extremes to take place within the framework of democracy. That is if the superpowers and Arab league don't feel too threatened.

Richard Tandlich
Telluride, Colorado

No euphoria about chemical structure

In your Winter '87 issue you ran an article by 'R.U. Sirius' entitled: "May You Never Sleep" dealing with personal use(s) of experimental or FDA licensed materials which your article collectively termed 'cognitive enhancers.' Some of these are prescription only drugs, others come from underground chemistry. Psychedelics generally have continued to receive erronious, confused & even hysterical press stemming from the LSD chromosome scare of the mid-sixties through & into today's supposedly better informed press & reporters having, among other things, computer technology to aid in getting the facts straight. Or so one would think. Or at least hope.

However, I'm sorry to say that *Whole Earth Review* has perpetuated this same disregard for the facts of the matter not in one issue (Winter1987) but again in your Summer 1988 issue surrounding the same subject — U4Euh (Euphoria). In Sirius' original piece, he presented a completely *false* chemical iden-

tification diagram re: U4Euh, showing instead that of MDA, a completely different substance altogether. We all make mistakes, but Sirius *again* put his foot in his mouth, appearing in the June issue of *Whole Mind* & calling U4Euh N-Methyl Aminorex, which is again false.

In the Summer *WER* there is a letter of rebuttal to Sirius' article which attempted to once & for all (I suppose) set the facts straight, particularily about U4Euh. Here again, an attempt at correcting dis-information *in actuality* ends up spreading further myths & false facts surrounding U4Euh & psychedelics.

The letter writer states: "finally, U4Euh is relatively untested, both scientifically & on the street, etc . . . ."

OK. Let's get some facts straight & clear up a lot of confusion about this substance U4Euh. U4Euh (4-Methyl Aminorex) was 1st discovered by a research group headed by Geordie Poos at McNeil Laboratory in Ft. Walsh, Pa. in the early 1960's. The 1st published report appeared in *The Journ of Med. Chem.* in 1963[1] & several other patents were issued in Belgium, France & the US.[2,3,4] Three other papers were published regarding U4Euh in 1963 & 1966.[5,6,7]

In the mid 1980's, U4Euh was resurrected within the underground & noncontrolled experiments were carried out on humans. The substance's new spokesman was named The Friendly Stranger & samples were studied at, among other places, the Continental Rainbow Gatherings. Both instructional manuals *as well as* ongoing research results were distributed to those having interest & concern about U4Euh & its effects.

There are two forms of U4Euh currently available via the underground — the free-base & the hydrochloride. Prices range for $75 per gram for the hydrochloride upwards to $150 per gram for the most powerful free-base.

This substance (4-Methyl Aminorex) was placed on schedule 1 by the DEA & the FDA in 1987. The resultant scheduling report presented by the DEA shows a *death* associated with its use (or abuse).

Unfortunately, psychedelics or 'cognitive enhancers' remain the legendary, obscurely attractive sources for 'bad press'—& are kept illegal—*because* false, misleading, obtuse or hysterical reporting (like that perpetuated in your *WER*) outweighs the true facts of the matter.

I hope that author R.U. Sirius & *WER* continue to provide insightful articles in the area(s) of drug use/abuse. However, some attempt must be made to provide accurate reporting, especially in areas already worked over by too much of the same.

Best wishes,
Thomas Lyttle
Publisher
Psychedelic Monographs and Essays

References

1) *Journal of Medicinal Chemistry* 6, 266 (1963)
2) Belgian patent 628, 803, June 16, 1963
3) French patent M2448, May 4, 1964
4) U.S. patents 3,161,650 Dec 15, 1964 and 3,278,382 Oct. 11, 1966.
5) Archives Int. Pharmacodyn. Ther. 164(2), 412-18 (1966)
6) *Journal of Pharm & Experim. Therapeutics* 140: 367-374 1963.
7) Ibid. 141: 180-84 (1964).
8) *Journ. Clin. Pharmacology* 7:296-302 (1967).
9) *Science* 1982 218 (457) 487-490.
10) *Annual Reviews of Med. Chemistry* 1965 51-58 (1966) 44-47

The above mentioned references were provided by *Psychedelic Monographs & Essays* from an upcoming piece entitled: "A Chemical & Pharmacological Review of Euphoria or Intellex" by *The New Age Chemist.*

This piece will appear in the Autumn 1988 (vol.4) edition of *PM&E.*

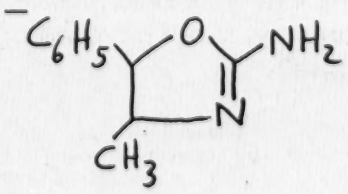
Another alchemist who agrees

Dear Friends,

I read with interest the article in issue #57 on intelligence drugs by "R.U. Sirius." I also read the same author's letter correcting the depicted structure and identification of "Euphoria" in issue #58.

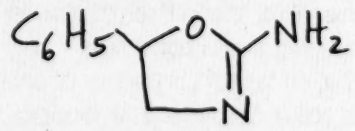
I too noticed that the chemical structure on page 58 (#57) was that of 3, 4-methylene dioxymethamphetamine (mistakenly spelled as "3,4-Methylene Dimethoxy Methamphetamine"), while it was incorrectly labeled as "EUPHORIA." The label was also incorrect in stating that it was "chemically related to MDMA — it IS MDMA. The phrase was meant to say "chemically related to MDA." The label was however, correct in stating that it was "Ecstacy."

In "Sirius's" letter (#58, page 140) correcting his article in issue #57, he (?) states that "Euphoria is N-methyl Aminorex and looks like this —

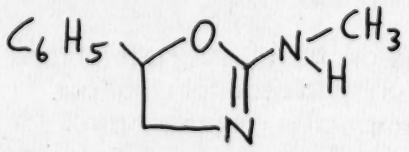


Well, this structure is not that of N-methyl Aminorex. It is correctly called 4-methyl Aminorex.

Aminorex has the following chemical structure:



And the structure of N-methyl Aminorex is as follows:



I am not yet sure what the correct chemical structure of "Euphoria" is but I am sure of the above information. Perhaps this will help clear up the misunderstanding.

"Sirius," maybe you could try again to enlighten us? What is the correct structure and name of "Euphoria"?

Yours sincerely,
The Alchemist
Vashon, Washington

Stay ahead

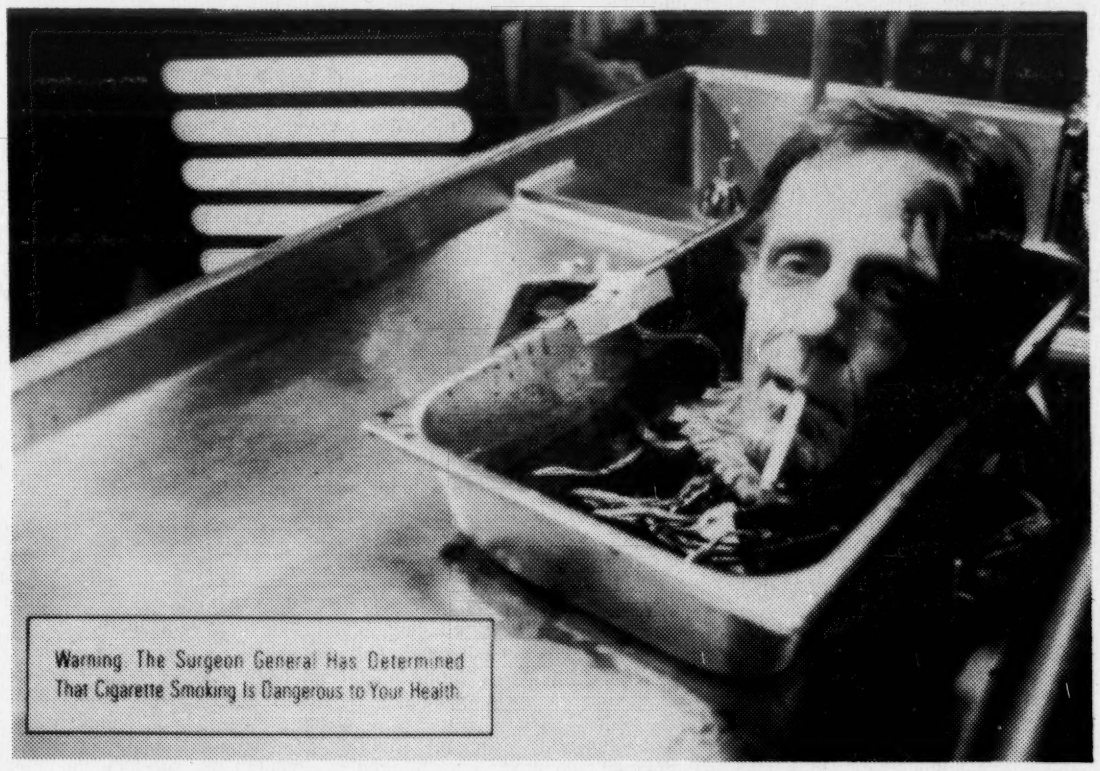
Dear Chet Fleming ("If We Can Keep A Severed Head Alive. . . "(*WER* #59, p. 12),

I've been long dragging and bored with dull causes like war, torture & pollution. Now I'm excited about something! Severed Head's rights! Let's march on Washington!

Mark Dobson
LA, CA

Corrections

The trouble readers had getting mail to the *New Internationalist* (*WER* #58, p.107) was in part due to our running its old address. The correct address for *NI* is P.O. Box 1143, Lewiston, NY 14092. They promise prompt service at that address. The correct address of Great Expeditions (*WER* #58,p. 81) should read Box 8000-411, Sumas, WA 98295-8000. Harvest Press, the publisher of *Advertsing in the Yellow Pages* (*WER* #59, p.78) has moved to 353 G. Avenue, Lake Oswego, OR 97034; 503/697-3030. The Anatomical Products Catalog (*WER* #59, p. 102) is not free, but costs $6. When ordering U.S. Government publications you need to have a stock number and we neglected to give one for *Health Information for International Travel* (*WER* #59, p.116). It's number 017-023-00183-3.



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SHALL WE GO, you and I while we can, through the transitive nightfall of diamonds?

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- **The first few words in your ad will be in capital letters.** We cannot do any other words in capitals.
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- **Deadline** is September 12 for the Winter issue, December 12 for the Spring issue, and March 11 for the Summer issue. Sorry, we will not take ads over the phone. Ads received after deadline will be held for the following issue.
- **We print ads in the order received.** "UNCLASSIFIEDS" means "no categories."
- **Mail ad and payment (made out to *Whole Earth Review*) to:** Lori Woolpert, WER UNCLASSIFIEDS, 27 Gate Five Road, Sausalito, CA 94965.

GOSSIP

All work and no play makes a very boring office. And a grumpy one, too, as a long summer of projects drags on and on. Kathleen remarked that we always have projects in the summer when we are least inclined to do them, and why don't we do one in the winter for a change when it does nothing but rain outside? No answer. It's poor management on my part. One of the improvements for the future is not to have four projects going on at once with deadlines a month apart.

The project that is proving to be a major improvement in the present is our new in-house fulfillment service. Using a Macintosh II housed in one corner of the office, we are now processing and tracking all our readers' subscriptions. This seemingly simple task is irritatingly complex, which is why most magazines don't do it for themselves. (It's usually done by a service house located in, say, Colorado or Illinois which does the job wholesale, and at wholesale's minimum standards.) As far as we know we are one of the largest-circulation magazines running its list in-house on a Macintosh. It's no less complex doing it ourselves, but assisted by the adaptable MacSUB software, we believe we can offer superior service. Instead of a four- or five-week turnaround, we can offer immediate confirmation of a subscriber's status. Last week Paul Davis, the construction boss for MacSUB, came floating into the common room hovering about 17 inches off the floor. He had just INSTANTLY and ACCURATELY and once-and-for-all fixed the complaint of the first subscriber to call in while the system was up. He said that moment felt like he had just slain a monster that he had been wrestling in the dark for years. Keep Paul in epiphany. Write directly to us (P. O. Box 38, Sausalito, CA 94966) to sign up, renew, or straighten out a problem.

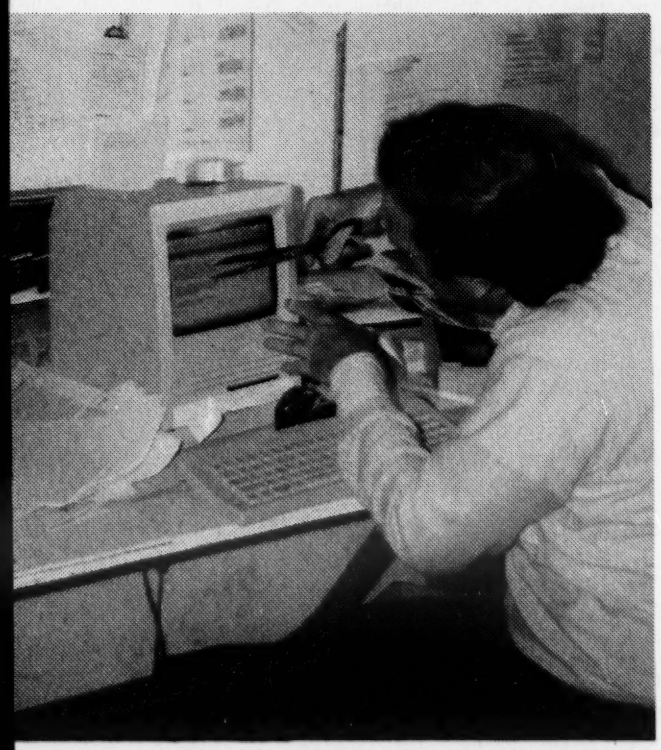
A reminder again to our faithful newsstand readers — Don't be! The primary beneficiaries of newsstand sales of Whole Earth Review *are the newsseller and the distributor, not us. We take, on the whole, only 17 cents for each copy sold. The rest of the five dollars you pay oils the pipeline. It costs you the same to subscribe, and we offer door-to-door service, so why not send in the little postpaid card bound in the back? That way we can use the entire amount to make a better magazine. Tell us where you live and we'll hire a person in a blue uniform to come to your house or office and drop each issue off. Saves you the time and money of getting to the store to pick it up yourself.*

●

The first Whole Earth Catalog *was published 20 years ago. It has stayed in business by not looking back. But twenty years is too long not to consider the past at all, so next issue we turn to old contributors and old ideas to see if there is something there for us now. I*

Dick Fugett

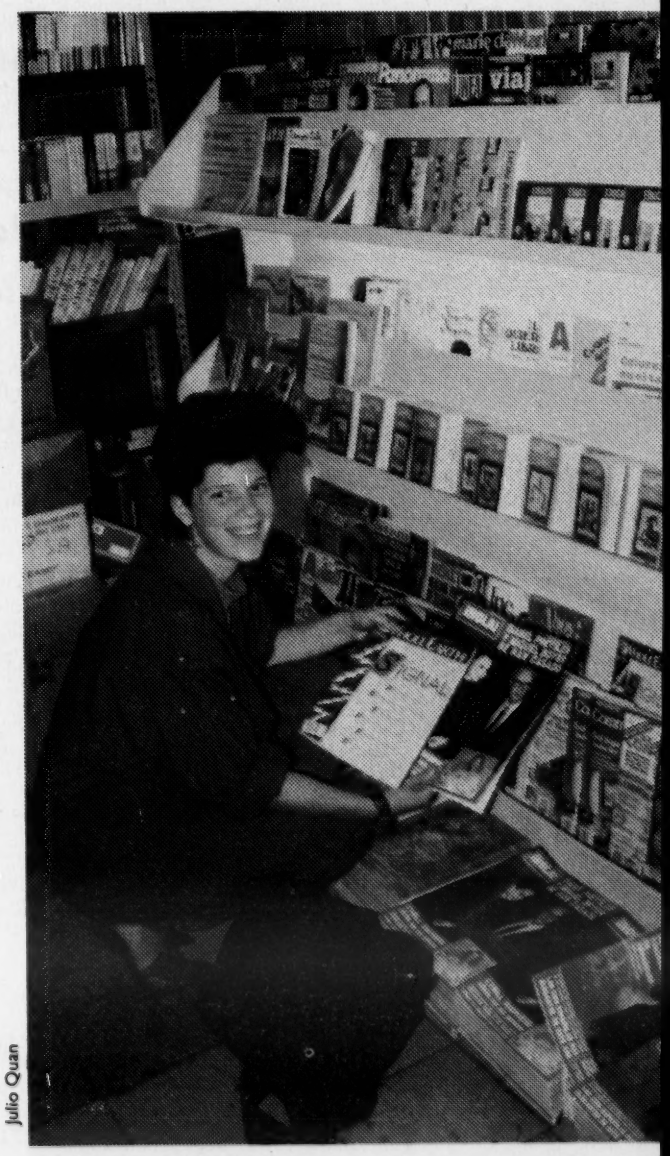
Bill Atkinson (left), author of HyperCard, visits the Electronic Whole Earth Catalog gang to offer a few tips in using HyperCard to translate information from print to the new medium of hypertext.



Richard Nilsen

(Left) Kevin Kelly mixing metaphors on a Macintosh during the making of *Signal*.

(Right) To that age-old question we are so frequently asked — "Where can I find *WER* on a newsstand?" — we now have an answer: at the airport in San Jose, Costa Rica. Jeanne Carstensen was stunned to find her guest-edited issue for sale here when she couldn't find it in many bookstores in San Francisco, USA.



Julio Quan

think of this review as friends of the past talking about the future. The idea is to have familiar faces of Whole Earth's history tell us what they are passionate about now, what they have changed their minds about in twenty years, and what they think will be happening in another twenty years. Readers, as prime elements of Whole Earth publications, are invited to contribute. Responses to the question: What have you changed your mind about? *are particularly sought. Send them to me as quickly as possible.*

What ever happened to . . . ? *is the other major question we'd like to nudge. Whatever happened to voluntary simplicity? To Herman Kahn's predictions? To Dan O'Neill? To Bucky Fuller's World Game? To the tree-planting Hoedads? To space colonies? What ever happened to hitchhiking, to composting toilets, to homesteading? What are the questions you are asking yourself? There is likely publication for anyone writing in with a good story for an answer.*

Since we are too busy to have a large family gathering this 20th, we'll have to have a Whole Earth jamboree on our 22nd or some such anniversary. In the meantime we'll be converging by mail. Please write. —Kevin Kelly

READER SERVICES: HOW TO . . .

. . . Order From Whole Earth Access

The phrase "or Whole Earth Access" that appears under most of our access information means you can order the product from the Whole Earth Access Company, an outfit inspired by the ***Whole Earth Catalog*** but not financially connected with us in any way. *Do not send orders to* ***Whole Earth Review****.*

Whole Earth Access:
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Send a letter to Keith Jordan, ***Whole Earth Review***, 27 Gate Five Road, Sausalito, CA 94965 for rates and information.

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If you want your name left off mailing list rentals, please write and tell us.

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Northern Illinois University Library, Oregon, IL;
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Bonnie and Joe Ryan
to University of Vermont, Bailey/Howe Library, Burlington, VT.

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If you would like to adopt a library, send your contribution to: WER Library Fund, 27 Gate Five Road, Sausalito, CA 94965.

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Subscriptions to ***Whole Earth Review*** are $20 for one year (4 issues) and $37 for two years (8 issues). Foreign rates are $24 for one year and $45 for two years. For air mail delivery anywhere in the world, add $8 per year. Send your order with payment to: ***Whole Earth Review***, P. O. Box 38, Sausalito, CA 94966.

. . . Order Back Issues

The quickest way to order back issues of this magazine is not from us but from Whole Earth Access (see address above left). ***CoEvolution Quarterly*** issues 14-44 are $3.50 each, postage paid, or $10 for four. Each ***WER*** back issue is $3 for issues 45-48, $4.50 for 49-59, and $5 for 60, postage paid. All 28 available ***CQ*** issues are sold as a set for $34, postage paid.

. . . Join the Preserves

A $25 donation secures your membership in the **Whole Earth Preservation Society and Volleyball Reserves.** It also helps to support the magazine. In return, you receive four issues of a quarterly newsletter filled with gossip, news, letters and other information. We'll print your name in the magazine (unless you prefer otherwise). Send your check to Whole Earth Review, 27 Gate Five Road, Sausalito, CA 94965. The newsletter is mailed between magazine issues to readers who have joined the Preservation Society. Thanks for your support.

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Point Financial Report
Second quarter (April-June) 1988

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Income	
Subscriptions/back issues	$ 72,519
Mailing list rental	2,874
Direct distribution	16,385
Warner (national newsstand)	19,023
Book sales	2,209
Syndicated column	1,304
Contributions	2,122
Other	3,038
Total Income:	**$119,474**
Expenses	
Salaries: Editorial	$ 10,534
Production	8,097
Circulation	13,337
Office	8,994
Research	5,903
Outside production services	367
Writers/contributors	6,825
Printing	26,514
Subscription fulfillment	14,395
Circulation promotion	9,656
Direct distribution	1,611
Warner (national newsstand)	2,704
Insurance	854
Health insurance	830
Vacation	1,444
Taxes	12,280
Supplies/research	3,468
Equipment rent/maintenance	1,065
Telephone/networks	2,396
Postage	2,281
Rent/maintenance/utilities	11,102
Legal/professional services	427
Interest/bank charges	1,617
Miscellaneous	306
Total Expenses:	**$147,007**
PROFIT/LOSS:	**-27,533**

POINT FOUNDATION

Income	
CD-ROM advance	$ 40,000
Signal/Fringes advance	65,000
Whole Earth Review	119,474
Total Point Income	**$ 224,474**
Expenses	
CD-ROM	36,735
Signal/Fringes	60,919
Whole Earth Review	147,007
Total Point Expenses	**$ 244,661**
TOTAL PROFIT/LOSS	**– 20,187**

The WELL

Expenses	
Payroll	$ 33,612
Computer/communications	26,132
Hardware/software	1,579
Promotion/advertising	2,129
Office	4,120
General/administrative	6,020
Total Expenses	**$ 73,592**
Income	
WELL charges/ communication charges	87,893
Total Income	**87,893**
PROFIT/LOSS	**$ 14,301**

Susan Erkel Ryan, Ted Schultz, Rebecca Wilson
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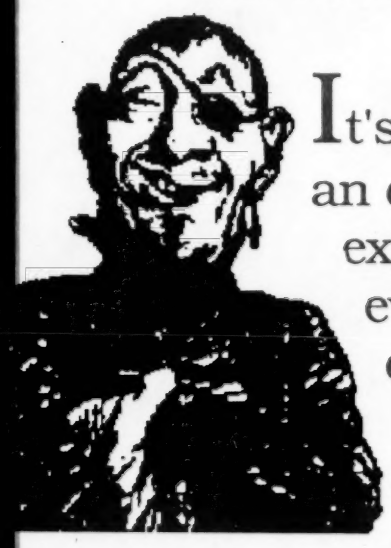

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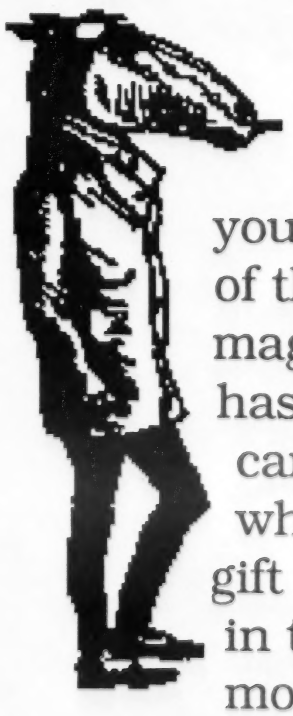

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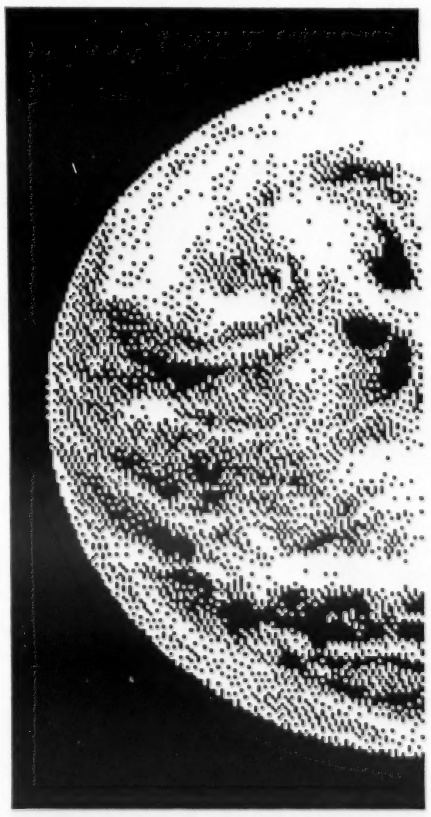
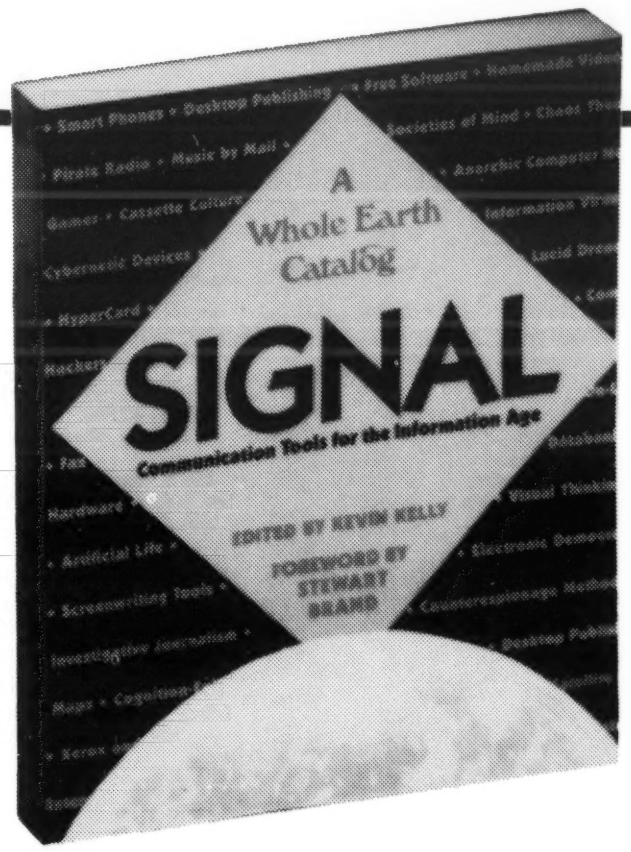
NEXT ISSUE

Whole Earth will be celebrating 20 years of maverick reporting this winter. On hand will be old friends like Ken Kesey, Gary Snyder, Wendell Berry, and others, introducing the next generation of culture benders, and young turks irritating/impressing the old guard. As we did in our 10th anniversary Whole Earth Jamboree, we'll be gathering innovative ideas, marking new currents, and featuring remarkable people in a special anniversary issue.



SIGNAL



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*TWENTY YEARS AGO, the **Whole Earth Catalog** first gathered and evaluated the tools necessary to re-build and re-think a material culture. It told how to do "more with less."*

*Now, at the beginning of Whole Earth's third decade, the ultimate "more with less" frontier beckons. Personal information and communication devices are re-wiring our lives. These utilities do more using less with each generation of innovation. The smaller they become, the more powerful they loom. As Alan Kay, one of the founders of personal computing philosophy said, "Any medium powerful enough to extend man's reach is powerful enough to topple his world. To get the medium's magic to work for one's aims rather than against them is to attain literacy." (**Scientific American,** September 1984)*

*To this end anything that promotes literacy in the new media has been evaluated and recommended in Whole Earth's newest catalog, **Signal**.*

***Signal** returns to the **Whole Earth Catalog's** oversize format. Nine hundred new and classic products, publications and software programs get the Whole Earth review treatment. Its 228 large pages were produced on a Macintosh, via the publication method recommended by the book itself . The book examines hi-tech hardware (computers, camcorders, music synthesizers), keeping in mind the fundamental human forms of personal communication — journal writing, public speaking, and drawing . It's a toolbox for the humanitarian takeover of the information economy.*

***Signal** began, as I think many books begin, as a book you can't find. There was no one book that surveyed the ecology of information in whole, nor one that linked that ecology to the personal communication lines of art and literature. There was no one source that hooked up the theory of conversation with conversation tools. As editor, I wanted to make a book for biologists, photographers, and poets that would allow them to tap as deeply into this territory of intangibles as they cared to go.*

***Signal** is a catalog of cybernetic ideas, recursive examples (the telecommunication advice was telecommunicated, the xerox art xeroxed onto the page),and practical utilities for manipulating a most paradoxical wealth — a "more with less" power amplified and confused by copying, transmitting, duplicating, broadcasting and synthesizing. The research originated in a special issue of **Whole Earth Review** (Fall 1987), and like all of our publications, it has been fattened by feedback from readers and other new contributions. The next version will be compiled by the same — you.*

— Kevin Kelly

Yellow-crowned night heron, one of several species thriving on a restored island. (See p. 42.)

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